

# LINCOLN INTERNATIONAL MULTIDISCIPLINARY CONFERENCE - 2024

IN COLLABORATION WITH  
GAMPAHA WICKRAMARACHCHI UNIVERSITY OF  
INDIGENOUS MEDICINE



“INNOVATION AND  
SUSTAINABLE DEVELOPMENT”

CONFERENCE  
PROCEEDINGS

ORGANIZED BY



Gampaha Wickramarachchi  
University of  
Indigenous Medicine

POWERED BY



# **LINCOLN INTERNATIONAL MULTIDISCIPLINARY CONFERENCE (LIMC) 2024**



*"Innovation and Sustainable Development"*

## **CONFERENCE PROCEEDINGS**

**25<sup>th</sup> & 26<sup>th</sup> August 2024**

*Organized by*

**Lincoln University College, Malaysia in collaboration**

**with**

**Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka**

*Powered by*

**Lincoln Institute of Graduate Studies, Sri Lanka**

© LINCOLN INSTITUTE OF GRADUATE STUDIES

ISBN 978-624-6619-00-8



Proceedings of the LINCOLN INTERNATIONAL MULTIDISCIPLINARY CONFERENCE (LIMC) 2024. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, transmitted in any form or by any means-electronic, mechanical, photocopying, recording or otherwise- without the permission of the publisher.

The Editorial Board of LIMC 2024 and the Lincoln Institute of Graduate Studies are not responsible for the concepts, ideas and views reflected in the abstracts published in the Proceedings or for any instances of duplication caused by the abstracts having been published elsewhere, if any.

**Chief Editorial Panel:**

Prof. Janitha A. Liyanage

Prof. Nalin Abeysekera

Prof. Chandana Gunathilake

Prof. Sagara Chandrasekara

Prof. H. M. Suranjan Priyanath

Dr. Chandana Kasturi Arachchi

Dr. K. A. Upamalika Samanthi

Dr. Y. H. P. S. S. Pathirathna

Dr. Harini Navoda De Zoysa

**Published by:** Lincoln Institute of Graduate Studies, Sri Lanka

## CONTENTS

Chief Editorial Panel	V
Sub Editorial Panel	V
Editorial Panel - Proceedings	V
Panel of Reviewers	VI
Session Chair and Co-Chairs	VI
Organizing Committees	VII
Technical Session Committee	IX
Message from the Chair - Founder President, Lincoln University College, Malaysia, & Pro-Chancellor, Lincoln Institute of Graduate Studies   <b>Prof. Dr. Amiya Bhaumik</b>	X
Message from the Co-Chair - Director - International (SA - II), Lincoln University College, Malaysia   <b>Dr. Roshan De – Lima</b>	XI
Message from the Vice Chancellor - Lincoln Institute of Graduate Studies <b>Prof. Dr. Janitha A. Liyanage</b>	XII
Message from the Vice Chancellor - Gampaha Wickramarachchi University of Indigenous Medicine  <b>Prof. Ranjana Wickrema Seneviratne</b>	XIII
Message from Chief Guest - Vice Chancellor, University of Sri Jayewardenepura <b>Senior Prof. Dr. Pathmalal M. Manage</b>	XIV
Message from Chief Guest - Chairman, Sri Lanka Rupavahini Corporation Former Vice Chancellor, University of Sri Jayewardenepura, Sri Lanka <b>Senior Prof. Dr. Sudantha Liyanage</b>	XV
Message from Secretary - Head - Department of Postgraduate Studies, Lincoln Institute of Graduate Studies   <b>Dr. Chandana Kasturi Arachchi</b>	XVI
Message from Conference Coordinator – Senior Lecturer, Department of Indigenous Health Sciences, Faculty of Indigenous Health Sciences and Technology, Gampaha Wickramarachchi University of Indigenous Medicine   <b>Dr. Harini Navoda De Zoysa</b>	XVII
Foreword	XVIII
Keynote Addresses	XIX
List of Abstracts	XXIII
Abstracts	XXIII

## CHIEF EDITORIAL PANEL - LIMC 2024

---

- Prof. Janitha A. Liyanage
- Prof. Nalin Abeysekera
- Prof. Chandana Gunathilake
- Prof. Sagara Chandrasekara
- Prof. Suranjan Priyanath
- Dr. Chandana Kasturi Arachchi
- Dr. K. A. Upamalika Samanthi
- Dr. Y. H. P. S. S. Pathirathna
- Dr. Harini Navoda De Zoysa

## SUB EDITORIAL PANEL - LIMC 2024

---

- |                                   |                                    |
|-----------------------------------|------------------------------------|
| • Prof. Nimal Navaratne           | • Dr. Ishani D. Goonasekera        |
| • Prof. R.M.K. Ratnayake          | • Mr. Janaka Samarasingha          |
| • Prof. C. Manjula Samarawickrama | • Ms. C. Sathsarani Lokanwaththa   |
| • Dr. Pathmasiri Ranasinghe       | • Ms. Suvini R. Karunaratne        |
| • Dr. Thanusha Ruwanthi Perera    | • Ms. Azra B. Sartaj               |
| • Dr. Himashi Gamage              | • Ms. Oshadhi K. Kandapolaarachchi |
| • Dr. Ajith Perera                | • Ms. Dineli Ariyasinghe           |
| • Dr. Sandhya Fernando            |                                    |

## EDITORIAL PANEL - PROCEEDINGS - LIMC 2024

---

- Ms. Oshadhi K. Kandapolaarachchi
- Ms. R. V. Malsha Madhuwanthi
- Ms. R. K. A. B. Nayanathara
- Mr. Dinushka Manamperi
- Mr. Avinash Selvaratnam
- Ms. A. Sandra Mariyan
- Ms. M A Nadiyah Azaad
- Ms. Harshani Kumarasinghe
- Ms. Piyumi Chamathka
- Ms. R. P. U. A. Alupotha

## **PANEL OF REVIEWERS - LIMC 2024**

---

- Prof. Chandana Gunathilaka
- Prof. H. M. S. Priyanath
- Prof. C. Manjula Samarawickrama
- Prof. Nimal Navaratne
- Prof. R. M. K. Rathnayaka
- Dr. Chandana Kasturi Arachchi
- Dr. Y. H. P. S. S. Pathirathna
- Dr. K. A. Upamalika Samanthi
- Dr. Thanusha Ruwanthi Perera
- Dr. Himashi Gamage
- Dr. Ajith Perera
- Dr. Sampath Chandrasena
- Dr. Chulani Herath
- Dr. Sandhya Fernando
- Dr. Harini Navoda De Zoysa
- Dr. Kamalika Jayathilake
- Dr. Nayani Daranagama
- Dr. Srinani Nanayakkara
- Mr. K. P. Nishantha
- Mr. P. Seneviratne
- Ms. R. D. C. Niroshini
- Ms. Suvini R. Karunaratne

## **SESSION CHAIR & CO CHAIR - LIMC 2024**

---

- |                                   |                                  |
|-----------------------------------|----------------------------------|
| • Prof. C. Manjula Samarawickrama | • Dr. Harini Navoda De Zoysa     |
| • Prof. Nimal Navaratne           | • Dr. Himashi Gamage             |
| • Prof. Chandana Gunathilaka      | • Dr. Ajith Perera               |
| • Prof. R. M. K. Rathnayake       | • Dr. Sandhya Fernando           |
| • Prof. N. G. S. Shantha Gamage   | • Dr. Renuka P. Perera           |
| • Dr. Pathmasiri Ranasinghe       | • Dr. Chandana Kasturi Arachchi  |
| • Dr. W. Thanusha Perera          | • Dr. Sampath Chandrasena        |
| • Dr. J. Sumedha Jayaweera        | • Dr. Y. H. P. S. S. Pathirathna |
| • Dr. K. A. Upamalika Samanthi    | • Dr. Nayani Daranagama          |
| • Dr. H. M. C. J. Herath          | • Dr. Athulasiri Samarakoon      |
| • Dr. Kamalika Jayathilake        |                                  |

## **ORGANIZING COMMITTEES - LIMC 2024**

---

### **MAIN ORGANIZING COMMITTEE**

- Prof. Janitha A. Liyanage | Head of Conference - Academic
- Dr. Roshan de Lima | Head of Conference - Administration
- Dr. Chandana Kasturi Arachchi | Secretary
- Dr. Shalika Pathirathna | Conference Chief Coordinator - GWUIM
- Dr. Harini Navoda De Zoysa | Conference Coordinator - GWUIM
- Dr. K. A. Upamalika Samanthi | Conference Chief Coordinator - Academic
- Mr. P. K. D. Channa Tharanga | Conference Chief Coordinator - Administration
- Ms. Disna Kamani Rathnayake | Conference Co-coordinator - Registration
- Ms. Avanthi Fernando | Conference Co-coordinator - Finance
- Ms. Suvini R. Karunaratne | Conference Co-coordinator - Organizing & Marketing
- Ms. Azra B. Sartaj | Conference Co-coordinator - Organizing & Programme Management

### **ORGANIZING COMMITTEE - TECHNICAL & PROGRAMME**

- Mr. Avinash Selvaratnam
- Ms. Christine Prathieshanaa Jeyachandran
- Ms. A. Sandra Mariyan
- Ms. M. R. F. Rizla
- Ms. S. H. Tekla Hasithani Madhuwanthi

### **REGISTRATION COMMITTEE**

- Ms. Saroja Priyadarshani
- Ms. Chamani Shanika Premadasa
- Ms. Hirusha Madushani Pubhudumali
- Ms. T. C. S. Wijerathne

### **REFRESHMENT COMMITTEE**

- Ms. Lakshani Abesundara
- Ms. Sinesha Sathees
- Mr. Thisara Darshana
- Ms. Aruniya Krishnakum

### **CERTIFICATE & AWARDS COMMITTEE**

- Dr. Sampath Chandrasena
- Ms. Oshadhi K. Kandapolaarachchi
- Mr. M. Chathura Udara Fernando
- Ms. Oshini Balasooriya
- Ms. M A Nadiyah Azaad
- Mr. Tharindu Hemawansha
- Ms. C. B. Wanigasinghe

#### **PRINTING & PRODUCTION COMMITTEE**

- Ms. Nadiya Azaad
- Ms. A. Sandra Mariyan
- Mr. D. G. C. D. Wijesena
- Mr. R. D. P. Dilantha
- Mr. Kaliratnam Pravin

#### **DIGITAL COMMUNICATION COMMITTEE**

- Ms. Nadiya Azaad
- Ms. N. A. S. I. B. Praneesha Kumari
- Ms. A. Sandra Mariyan

#### **COMPÈRING COMMITTEE**

- Ms. Suvini R. Karunaratne
- Ms. Christine Prathieshanaa Jeyachandran
- Ms. Harshani Kumarasinghe

#### **LOGISTICS COMMITTEE**

- Mr. D. G. C. D. Wijesena
- Mr. M Chathura Udara Fernando
- Mr. Hakeem Nawabdeen
- Mr. Afran Riyas

#### **FINANCE COMMITTEE**

- Ms. Avanthi Fernando
- Mr. Muditha Methmala
- Ms. Ishadi Rajapaksha
- Ms. Nimesha Tharangani



## **TECHNICAL SESSIONS COMMITTEE - LIMC 2024**

---

Head | Ms. C. Sathsarani Lokanwaththa

### **TECHNICAL SESSION MODERATORS**

---

- Ms. Oshadhi K. Kandapolaarachchi
- Ms. R. V. Malsha Madhuwanthi
- Ms. R. K. A. B. Nayanathara
- Mr. Avinash Selvaratnam
- Ms. Christine Prathieshanaa Jeyachandran
- Ms. Nadee Tharanga Unugoda
- Ms. Ravindini Weerakoon
- Ms. C. B. Wanigasinghe
- Ms. Vishmi Jayasinghe
- Ms. S. A. D. P. Suraweera

### **TECHNICAL SESSION ASSISTANTS**

---

- Ms. Oshini Balasooriya
- Ms. Anuradha Alupotha
- Mr. Tharindu Hemawansha
- Mr. Chathura Madhuranga
- Ms. S. H. Tekla Hasithani Madhuwanthi
- Ms. Nadiya Azaad
- Ms. M. R. F. Rizla
- Ms. A Sandra Mariyan
- Dr. M. G. W. R. Kumari
- Ms. T. M. D. T. Munasinghe
- Mr. B. L. P. C. Balasooriya

### **IT & TECHNICAL SUPPORT COMMITTEE**

---

- Mr. R. D. P. Dilantha
- Mr. Stephan Anjelo
- Mr. Banuka Susanjaya
- Mr. Adithya Dissanayake
- Mr. Ovindu Dileepa Lahiruka
- Mr. I. G. R. S. Senevirathne

## MESSAGE FROM THE CHAIRPERSON OF LIMC 2024

**Prof. Dr. Amiya Bhaumik**



Lincoln University College Malaysia, is committed to delivering high-quality international education, emphasizing innovation in teaching and research to address contemporary challenges to facilitate entrepreneurial development among professionals. Established under the theme, 'Education for All', Lincoln University College, joins the global arena of universities. The university's vision extends beyond borders, fostering strong global relationships. Notably, the institution recognizes the significance of enabling education

opportunities at affordable costs with the goal of nurturing future global leaders, ensuring they are well-equipped to contribute to the ever-evolving landscape of their respective industries. The inaugural conference, Lincoln international Multidisciplinary Conference 2024, in Sri Lanka has received much prominence in the LUC calendar and this year, the conference features under a main theme "Innovation and Sustainable Development" and Seven sub themes, 'Computer Sciences', 'Education', 'Engineering', 'Management', 'Medicine', 'Science and Technology', and 'Social Sciences'.

On behalf of the University, I extend my deepest appreciation to the organizers, speakers, and participants for their dedication and hard work. Your contributions make this conference a significant milestone in our shared journey of discovery and advancement.

Wishing you all a productive and inspiring conference.

**Prof. Dr. Amiya Bhaumik,**

**Founder President, Lincoln University College, Malaysia,**

**Pro-Chancellor, Lincoln Institute of Graduate Studies.**

## MESSAGE FROM THE CO-CHAIR OF LIMC 2024

### Dr. Roshan De Lima



It is with great pleasure and honor that I extend my heartfelt congratulations and warmest regards to all scholars, researchers of LIMC 2024. This gathering brought together a diverse group of researchers, practitioners, and leaders, each contributing unique perspectives and valuable insights. As you explore the proceedings, we hope you will find the diverse range of research and discussions both inspiring and informative. These proceedings represent not only the culmination of this year's conference but also a steppingstone for future research and collaboration. We

encourage you to leverage the knowledge shared here, engage with your peers, and continue pushing the boundaries of what we know.

A heartfelt thank you to the organizers for their efforts in bringing this event to success, as well as to all the speakers and participants for their valuable contributions. Your enthusiasm and hard work are what make this conference a pivotal moment in our ongoing quest for knowledge.

We look forward to the continued growth and evolution of our field and to welcoming you to future gatherings where we can build on the momentum created here.

Thank you for your participation, your enthusiasm, and your contribution to making the Lincoln International Multidisciplinary Conference 2024 a resounding success.

**Dr. Roshan de Lima,**  
**Director - International (SA - II),**  
**Lincoln University College.**

## **MESSAGE FROM THE VICE – CHANCELLOR**

**Prof. Dr. Janitha A. Liyanage**



It gives me great pleasure to invite you to the 1<sup>st</sup> Lincoln International Multidisciplinary Conference (LIMC) 2024 with the theme “Innovation and Sustainable Development” to be held on 25th and 26th of August 2024 at Lincoln Institute of Graduate Studies, Kohuwala. The proceedings contain 120 Abstracts. There were over 200 Abstracts submitted to the LIMC 2024 and after a peer review by experts in the relevant field, 120 papers were accepted for oral presentation at the symposium. I strongly believe that innovative research culture should be introduced to all sectors.

We at LIGS promote and open its windows to innovative research ideas.

This conference will be a good platform for innovators to disseminate their findings and receive feedback from their peers. I would also be thankful to Prof. Dr. Amiya Bhaumik, the Founder President, Lincoln University College, Malaysia, Pro-Chancellor, Lincoln Institute of Graduate Studies for his valuable contribution and sincere thanks to the Keynote Speakers and Chief Guests, Prof. Dr. Chandana Gunathilaka, Prof. Dr. Nalin Abesekara, Senior Prof. Dr. Pathmalal M. Manage and Senior Prof. Dr. Sudantha Liyanage for reserving time to be with us and sharing their valuable experience. My heartfelt gratitude to Prof. Dr. Amiya Bhaumik and Dr. Roshan, the Conference Chair and Co-Chair of the Symposium for all their hard work, dedication and commitment towards the success of this event.

I am thankful to the authors, co-chairs, reviewers, LIMC Organizing committee, Council members, Senate members and all the members of staff at LIGS for their great contribution towards making this event a reality and my big congratulations to all presenters of this symposium.

**Prof. Dr. Janitha A. Liyanage,**

**Vice Chancellor - Lincoln Institute of Graduate Studies.**

## **MESSAGE FROM THE VICE – CHANCELLOR**

**Prof. Ranjana Wickrema Seneviratne**



It is with great pride and enthusiasm that I extend a warm welcome to all participants of the LIMC 2024 research conference, a collaborative initiative between Lincoln University and the Gampaha Wickramarachchi University of Indigenous Medicine. This conference stands as a milestone in fostering interdisciplinary research, innovation, and knowledge exchange, particularly in the field of indigenous

medicine and its integration with modern

scientific advancements. Furthermore, the joint collaboration between a state university and a non-state academic institution represents a unique and much-needed partnership. It highlights the diversity of approaches and perspectives essential for driving innovation and addressing the complex challenges faced by today's global healthcare systems. As we gather for this prestigious event, we are reminded of the importance of preserving the rich heritage of indigenous knowledge while embracing the dynamic developments in modern healthcare. The collaboration between our two institutions symbolizes a commitment to creating a global platform for researchers, scholars, and practitioners to engage in meaningful dialogue, share groundbreaking research, and contribute to a healthier, more sustainable future.

The LIMC 2024 conference is not only an opportunity to celebrate academic excellence but also, to forge new partnerships and networks that will drive innovation and transformative change in the fields of medicine, science, and beyond.

I would like to express my sincere gratitude to all the organizers, speakers, and participants who have come together to make this event a reality. Your dedication and contributions are what make conferences like these possible, and I am confident that the discussions and outcomes from LIMC 2024 will have a lasting impact on the global research community.

I wish you all a successful and enriching conference experience.

**Prof. Ranjana Wickrema Seneviratne**

**Vice Chancellor - Gampaha Wickramarachchi University of Indigenous Medicine**

## **MESSAGE FROM THE CHIEF GUEST**

**Senior Prof. Dr. Pathmalal M. Manage**



It is with immense joy and profound gratitude that I address you as we embark on this remarkable journey at LIMC 2024. Being here as the Chief Guest is an extraordinary honor, and I am truly delighted to witness such a convergence of brilliance and creativity in our field. This conference represents more than just a series of presentations; it is a vibrant forum where our collective expertise meets to push boundaries, ignite new ideas, and challenge conventional thinking. Each of you brings a unique perspective and a wealth of knowledge that

contributes to the richness of our discussions and the advancement of our discipline. The range of topics on the agenda is nothing short of inspiring, showcasing the breadth and depth of research and innovation that define our community. Your dedication to exploration and excellence is evident in every paper and presentation we will encounter. I encourage you to dive deeply into the sessions, engage with your peers, and immerse yourselves in the dialogues that will unfold. These interactions are not just opportunities for learning but also for fostering collaborations that could shape the future of our field. As we delve into the complexities and potential of our work, let us embrace the spirit of curiosity and collaboration that drives progress. The insights and connections made here at LIMC 2024 will undoubtedly pave the way for new achievements and breakthroughs.

I extend my heartfelt thanks to the organizers for their tireless efforts in bringing this event to success, as well as to all the speakers and participants for their valuable contributions. Your enthusiasm and hard work are what make this conference a pivotal moment in our ongoing quest for knowledge.

**Senior Prof. Dr. Pathmalal M. Manage,**

**Vice Chancellor, University of Sri Jayawardanapura.**

## MESSAGE FROM THE CHIEF GUEST

**Senior Prof. Dr. Sudantha Liyanage**



It is with great pleasure and honor that I extend my heartfelt congratulations and warmest regards to all attendees of LIMC 2024. As the Chief Guest, I am deeply privileged to be part of an event that gathers some of the brightest minds and most innovative thinkers in our field. Conferences such as this one are not merely gatherings; they are dynamic platforms where ideas are exchanged, collaborations are forged, and the future of our discipline is shaped. The papers and presentations that will be shared over these days reflect the depth of research, the passion for discovery, and the commitment to advancing knowledge that defines our community. I am particularly

impressed by the diverse range of topics and the quality of work being presented. I encourage each of you to engage actively, ask challenging questions, and foster discussions that will lead to new insights and solutions. As we navigate the complexities and opportunities of our field, let us remember that our collective efforts have the power to drive meaningful change and impact.

The knowledge and connections gained from LIMC 2024 will undoubtedly contribute to our continued growth and success. I extend my deepest appreciation to the organizers, speakers, and participants for their dedication and hard work. Your contributions make this conference a significant milestone in our shared journey of discovery and advancement.

Wishing you all a productive and inspiring conference.

**Senior Prof. Dr. Sudantha Liyanage,**

**Chairman, Sri Lanka Rupavahini Corporation,**

**Former Vice Chancellor, University of Sri Jayawardanapura, Sri Lanka.**

## **MESSAGE FROM THE SECRETARY**

**Dr. Chandana Kasturi Arachchi**



I am delighted to offer my heartfelt congratulations and warmest greetings to everyone. As the Secretary, it is a great honor to be part of this event that brings together exceptional minds and innovators in various disciplines. This conference is more than just a meeting; it is a platform for vibrant idea exchanges, new collaborations, and shaping the future of the nation. LIMC 2024 brings together a diverse group of scholars, practitioners, and policymakers to share knowledge, exchange ideas, and collaborate on addressing the pressing challenges of our time.

The conference aims to foster interdisciplinary dialogue, bridging the gap between traditional wisdom and modern advancements, particularly in the context of developing nations like Sri Lanka. I encourage you all to actively participate, challenge ideas, and engage in discussions that will lead to new perspectives and solutions. The connections and knowledge you gain here will be valuable for our collective growth and success. We believe that by working together, we can drive meaningful change and contribute to a more sustainable future. I encourage you to actively engage in the discussions, build lasting connections, and take away insights that will inspire your work beyond this conference.

Thank you for your participation, and I wish you a productive and enriching experience at LIMC 2024. Furthermore, I would like to express my gratitude to the chief guests, keynote speakers, authors, co-chairs, reviewers, LIMC organizing committee, council members, senate members, as well as all the academic, administrative, and non-academic staff members at Lincoln Institute of Graduate Studies and Gampaha Wickramarachchi University of Indigenous Medicine for their significant contributions in ensuring the success of this event.

**Best Regards,**

**Dr. Chandana Kasthuri Arachchi**

**Head of Department - Postgraduate Studies**

**Lincoln Institute of Graduate Studies**



## MESSAGE FROM THE CONFERENCE COORDINATOR

**Dr. Harini Navoda De Zoysa**



It is with great pride and immense pleasure that I welcome you to the LIMC 2024 research conference, a unique collaboration between Lincoln University and the Gampaha Wickramarachchi University of Indigenous Medicine. This conference stands as a beacon of knowledge exchange and innovation, bringing together scholars, practitioners, and thought leaders from diverse fields to explore the cutting-edge advancements and challenges in indigenous medicine and its intersection with modern science. Our collective efforts in organizing this conference reflect our commitment to fostering interdisciplinary dialogue, promoting evidence-based research, and advancing the global discourse on sustainable health practices. As we convene to share insights, debate ideas, and forge new collaborations, I am confident that the outcomes of LIMC 2024 will significantly contribute to the enrichment of our academic community and the betterment of global health.

I extend my heartfelt gratitude to all the participants, presenters, and collaborators who have made this event possible. Your dedication and contributions are the pillars upon which the success of this conference stands. May this gathering not only inspire but also empower us to chart new paths in our respective fields, pushing the boundaries of knowledge and innovation.

Let us embrace this opportunity to learn, connect, and grow together, as we work towards a healthier, more informed, and more equitable world. Wishing you all a fruitful and enriching conference experience.

**Warm Regards,**

**Dr. Harini Navoda De Zoysa - Conference Coordinator - LIMC 2024**

**Lecturer and Former Head - Department of Indigenous Health Sciences, Faculty of Indigenous Health Sciences and Technology, GWUIM.**

## **FOREWORD**

It is with great pleasure that we write this Foreword to the Proceedings of Lincoln International Multidisciplinary Conference, LIMC 2024 conducted under the theme "Innovation and Sustainable Development". The proceedings comprise a total of 95 abstracts organized under 5 subthemes: Medicine (18 abstracts), Science and Technology (23 abstracts), Management (16 abstracts), Education (23 abstracts), and Social Science (15 abstracts). The conference aims to facilitate interaction between research students and early career academics with the more established academic community to discuss their current work. We are confident that the proceedings will be an added resource for the community to inspire further study and research in all areas. We would take this opportunity to express our gratitude to all expert reviewers who played a crucial role in the review process. Their dedication helped immensely to uphold the standard of the work presented at LIMC 2024. We would also like to extend our sincere appreciation to all the Chairpersons of the subthemes and the faculty-level editorial subcommittees. Their invaluable contributions were essential in making the proceedings of LIMC 2024 a reality.

We would like to express our heartfelt gratitude to the co-chairperson of LIMC 2024 organizing committee, Dr. Roshan De Lima. His unwavering support eased the process of compiling the proceedings. We also wish to extend special thanks to Dr. Chandana Kasturi Arachchi and Ms. Azra Sartaj of the Lincoln Institute of Graduate Studies for their invaluable secretarial assistance in compiling the proceedings.

## **KEYNOTE ADDRESS - PROF. DR. PATHMALAL M. MANAGE**

### **“Research for Innovation and Sustainable Development of Sri Lanka.”**

#### **ABSTRACT**

Sri Lanka, with its rich cultural heritage and diverse ecosystems, faces significant challenges in sustainable development due to rapid globalization, environmental degradation, and socio-economic disparities. To address these issues, the country needs innovation across various sectors, particularly agriculture, energy, water resources, and urban planning. Traditional farming methods are increasingly unsustainable, necessitating research-driven innovations such as precision farming and climate-resilient crops. The transition from fossil fuels to renewable energy sources is crucial for reducing carbon emissions and ensuring energy security, supported by advancements in clean energy technologies and grid management. Water management requires innovative strategies like Integrated Water Resource Management and advanced purification technologies to combat pollution and scarcity. Additionally, rapid urban growth demands smart city planning and sustainable infrastructure to improve livability and reduce environmental impacts. Despite the potential for research-driven innovation, Sri Lanka faces challenges including limited funding, inadequate infrastructure, and a need for stronger policy support. Addressing these challenges through increased investment in research, public-private partnerships, and international collaboration will help Sri Lanka harness innovation for sustainable development, positioning it as a leader in the South Asian region.

#### **ABOUT THE KEYNOTE SPEAKER**



Prof. Dr. Pathmalal M. Manage is a distinguished scholar with extensive contributions to eco-toxicology, water quality, and bioremediation. His work spans numerous prestigious fellowships, including those at Robert Gordon University and Sydney University, and he has received multiple awards for his research, including the CVCD Excellence Award and the Presidential Award. With a prolific publication record and significant involvement in national and international projects, Prof. Pathmalal's leadership and expertise continue to advance the fields of biology and environmental management.

## **KEYNOTE ADDRESS - PROF. DR. SUDANTHA LIYANAGE**

### **“Harnessing Innovation for Sustainable Development: Integrating Traditional Knowledge and Modern Technology for a Resilient Future”**

#### **ABSTRACT**

This discussion underscores the vital convergence of innovation and sustainable development to tackle pressing global issues such as climate change, resource scarcity, social inequality, and economic instability. Innovation is essential for driving progress and economic growth, yet its benefits must be balanced with sustainability to avoid depleting resources and harming the environment. A promising approach to achieving this balance is the integration of indigenous knowledge with modern technology. For instance, the collaboration between Lincoln University College and Gampaha Wickramarachchi University of Indigenous Medicine in Sri Lanka exemplifies how blending traditional practices with contemporary research can lead to more sustainable and effective solutions. This integration is particularly beneficial in fields like agriculture and healthcare, where traditional methods enhanced by modern techniques can improve productivity, reduce environmental impact, and offer holistic health benefits. To maximize the impact of innovation, it is crucial to foster a culture of inclusivity and collaboration, engaging stakeholders from academia, industry, government, and marginalized communities. Such a collaborative ecosystem ensures that the benefits of innovation are equitably distributed and that complex challenges are addressed comprehensively. By embracing these principles, we can ensure that technological advancements align with environmental stewardship and inclusive economic growth, paving the way for a resilient and sustainable future for all.

#### **ABOUT THE SPEAKER**



Prof. Dr. Sudantha Liyanage was the Vice-Chancellor of the University of Sri Jayewardenepura, with prior roles as Acting Vice-Chancellor and Dean. A leading figure in chemistry and education, he has contributed to national policy through presidential task forces and played a key role in developing new educational frameworks. As a fellow of several esteemed scientific and educational organizations, his work spans academic leadership, policy reform, and examination oversight, reflecting his commitment to advancing Sri Lankan education.

## **KEYNOTE ADDRESS - PROF. DR. NALIN ABESEKARA**

### **“Empowering Minds, Shaping Futures: Driving Innovation and Sustainability in Sri Lanka”**

#### **ABSTRACT**

Sri Lanka faces a significant challenge in shifting from a reactive mindset, often shaped by negative news, to one that fosters innovation and sustainability. Drawing inspiration from Japan’s cultural practices, such as the integration of 5S and Kaizen into daily life, Sri Lanka can learn the importance of embedding positive attitudes and continuous improvement into its national roadmap. The example of Japanese football fans cleaning stadiums after a devastating World Cup loss illustrates how a culture of respect, kindness, and process-oriented thinking can create positive outcomes even in difficult situations. To achieve similar progress, Sri Lanka must prioritize a cultural shift that values sustainability and innovation as core principles. This involves rethinking education to instill these values from an early age, encouraging gratitude, positive thinking, and mutual respect. The focus should move from merely holding workshops to embedding these practices into the societal fabric. By cultivating the right attitudes and fostering a culture of continuous improvement, Sri Lanka can address its challenges more effectively and pave the way for a sustainable, innovative future.

#### **ABOUT THE KEYNOTE SPEAKER**



Prof. Dr. Nalin Abeysekera is a Senior Lecturer in Management Studies and MBA program coordinator at the Open University of Sri Lanka. He holds a B.Sc. in Marketing and a PhD in Leadership and Marketing. With over fifteen years of experience, he focuses on strategic management, marketing, and research methodology. A chartered marketer and member of the Sri Lanka Institute of Marketing, he has lectured internationally and was a finalist for Best Asian Researcher in 2012. He has authored numerous papers, contributed to national media, supervises PhD students, and frequently appears on TV programs and panels.

## **KEYNOTE ADDRESS - PROF. DR. CHANDANA GUNATHILAKA**

### **“Innovation, Wisdom, and Values of Humans: The Tale of Two Innovations”**

#### **ABSTRACT**

This paper examines the intersection of human innovation and artificial intelligence (AI), using Charles Dickens' *A Tale of Two Cities* as a framework to highlight the tension between revolution and tradition in today's technological landscape. It explores how human creativity—driven by curiosity, empathy, and problem-solving—has historically led to significant advancements, such as electricity and the internet, and how AI complements these efforts through data-driven capabilities. By viewing AI as a tool to enhance rather than replace human ingenuity, the paper argues for a synergistic approach to leveraging technology. Additionally, it delves into the role of wisdom in organizational contexts, distinguishing between mundane and supra-mundane wisdom. The discussion underscores the need for adaptive and transformative wisdom in navigating complex, turbulent environments, and calls for a shift towards integral research methodologies to better address contemporary challenges. The aim is to stimulate a discussion on how to integrate wisdom with innovation to effectively manage rapid technological advancements and organizational change.

#### **ABOUT THE KEYNOTE SPEAKER**



Prof. Dr. Chandana Gunathilake is a distinguished Professor of Finance and currently serves as the Head of the Department of Finance at the University of Sri Jayewardenepura. He earned his PhD in Finance from the University of Malaysia Sarawak in 2016 and has been recognized for his academic contributions as a visiting scholar there in 2020. Dr. Gunathilake is also a MASHAV alumnus, having completed a diploma in higher education at Ofri College, Israel.

## LIST OF ABSTRACTS

Medicine	Pg No.
Factors Associated with the Psychological Distress of Working From Home among Sri Lankan Information Technology (IT) Professionals. <b>Rasangi, M.L.P.</b>	2
Medicinal Use of Milk and Dairy Products during Pregnancy: A Literature Review <b>Madumekala, A.L.H.S. and Kaldera, H.P.I.J.</b>	3
Phytochemistry and Thin Layer Chromatography of Avipattikar Choorna used in the Management of Gastritis (Amlapitta) <b>Ganesalingam, P., Jayasuriya, W.J.A.B.N., Herath, H.M.D.R., Arawwawala, L.D.A.M., Uluwaduge D.I., and Peiris, K.P.P.</b>	4
Evaluation of the Prevalence in Gastritis among Selected Sample of Teenagers in the Area of Kuliyaipitiya, Udawela <b>Nayananda, W.P.M.H.D., and Thathsara, J.A.C.P.</b>	5
Observation of Health-Related Quality of Life in Patients Undergoing Hemodialysis and Peritoneal Dialysis in Dambulla, Hettipola and Girandurukotte Area Clinic Visits <b>Fernando, R.D.V.S., and Jayasekara, J.V.P.</b>	6
A Study on Antibiotic Sensitivity Pattern of Gram-Negative Enteric Organisms Isolated from Patients with Urinary Tract Infection: A Study in Teaching Hospital, Kurunegala Sri Lanka <b>Tennakoon, K.B.N.A., Niwanthi, R.M.U.T., Dharmasena, P.A.S.H., Upasena, G.K.W.P., and Attanayake, A.M.C.K.P.</b>	7
Study of Antibiotic Usage for Neonates in Special Baby Care Unit in Ampara District General Hospital, Sri Lanka <b>Pathiraja, P.A.J.K., Abeyrathna, A.H.M.R.P., Hettiarachchi, A.J.U.K, Kotuwegedara, J.D.K.G., Karunarathna, K.A.P.R., and Shiffana, S.</b>	8
Evaluating the Level of Demanding a Valid Prescription and Obtaining Patient History while Dispensing Antibiotics in Selected Community Pharmacies in the Kaduwela District Secretariat, Sri Lanka <b>Galaudaarachchi, G.A.L.H., Wickramanayake, A.G.B.E.U., Madushanka E.U., and Nayanathara, R.K.A.B.</b>	9
Prevalence of Self-Administered Medication by Parents/Guardians of Children Aged 12 Years or Below, Attending Thomas Gall School, Karapitiya, Sri Lanka <b>Gunasekara, G.W.P.P., Goshika, H.K.G.G., Ruwan, D.W.D., and Parनावithana, R.H.</b>	10

Understanding and Addressing GP Burnout: A Qualitative Study of General Practitioners in the Western Province of Sri Lanka <b>Wijewardana, D., Vidanapathirana. J., and Bhumik, A.</b>	11
To Evaluate the Physical and Chemical Parameters and Microbial Stability of Selected Semisolid Extemporaneous Preparations which are being Dispensed at Skin Clinic National Hospital, Kandy <b>Munasinghe, R., Katekumbura, T., Mahagedara, M., Bandaranayake, O., and Rajani, I.</b>	12
Identifying Risk Factors in the Measles Outbreak Across Colombo District, Sri Lanka <b>Thilakasiri, L.A., and Perera, W.T.R.</b>	13
Descriptive Cross-Sectional Study of Patients' Knowledge of Correct Use of Their Clinic Medicine, Issued by Outpatients Department at Teaching Hospital, Anuradhapura, Sri Lanka <b>Thilakarathna, A.P., Sihari, H.R.I., Wickramarathna, E.W.N.M., Ranasinghe, R.M.B., and Ruksala, K.M.N.</b>	14
Descriptive Cross-Sectional Study of Parents' Knowledge, Practice, and Compliance Regarding Dose & Various Dosage Forms of Paracetamol Attend to Outpatients' Department in Lady Ridgeway Hospital, Colombo <b>Sihari, H.R.I., Thilakarathna, A.P., Wickramarathna, E.W.N.M., Laksiri, S.M.W.C., and Sanjeewa, D.M.L.</b>	15
Correlation between Screen Time Exposure and Symptoms of Attention-Deficit Hyperactivity Disorder in a Diagnosed Paediatric Population <b>Kodithuwakku, K.A.H.S.</b>	16
Factors Influencing the Selection of Mental Health Practitioners in Colombo: A Focus on Therapist Attributes <b>Lakshika, M.A.W.B.</b>	17
Describe the Food Pattern of the Moderate to Severe Acute Malnutrition Children between 2 to 5 Years of Age <b>Halambarachchige, L.P., and Perera, W.T.R.</b>	18
Knowledge and Attitude Towards Covid-19 Vaccine among the Staff of Professions Supplementary to Medicine (PSM) and Para Medical Category in National Hospital of Sri Lanka, Colombo <b>Bulumulla, D.M.C.M., Rajapaksha, Y.G.A.E., Achini, H.D., Helaweera, S.C.J., and Misbahunnisa, M.Y.</b>	19



<b>Science and Technology</b>	<b>Pg No.</b>
Availability of Basic Medical Instruments in Selected Hospitals in the Kegalle District <b>Perera, A.A.H.S., Ariyawansha, U.R.M.P., and Daranagama, D.A.N.D.</b>	21
Revolutionizing Canteen Operations: The Impact of AI-Based Automated Systems On Efficiency and User Experience <b>Ahamath, N.S., Rafeek, F.A., Samaraweera, D.A.R.S., Kumarasiri, R.A.S.S., and Ranasinghe, N.K.</b>	22
Pre-formulation Studies of Novel Oxidized Water Lily and Lotus Seed Starches: Potential Sources of Pharmaceutical Raw Material <b>Kankanamge, S.U., Jayasuriya, W.J.A.B.N., Herath, H.M.D.R., and Pathirana, R.N.</b>	23
Artificial Intelligence in Climate-Smart Agriculture: A Review of Recent Progress and Future Perspectives <b>De Silva, A.H.A.T.E.</b>	24
The Environmental Jurisprudence Approach to Reduce Carbon Emissions: Legal Responses to Climate Change <b>Spencer Vitharana, S.P.H., and Somasundaram, D.</b>	25
Advancements in Digital Technologies for Blood Donation Systems: A Comprehensive Review and Prospective Developments <b>Gunasekara, W.D.E.H., Madhushani, M.A.M., Makawita, M.G.T.A., and Ranasinghe, N.K.</b>	26
Smart Agriculture: The Role of Artificial Intelligence in Revolutionizing Irrigation Techniques <b>Samarasinghe, S.A.S.V., Ranasinghe, R.A.T., Navaratne, W.M.C.S.S., and Ranasinghe, N.K.</b>	27
Recent Advancements in Performance Improvement Methods or Microbial Fuel Cells <b>Hasna, M.S.P., Maha, M.F., Safana, K.R., Utharshana, S., Kirusayini, P., and Daranagama, D.A.N.D.</b>	28
Innovative Applications of Lotus Fibers in the Sri Lankan Fabric Industry: A Sustainable Approach <b>Rathnayaka, R.M.T.D.K.</b>	29
Optimizing Workload Allocation in Edge-Based Wireless Body Area Networks using a Particle Swarm Optimization Algorithm on Raspberry PI4 <b>Alahakoon, S. and Alobaedy, M.M.</b>	30
Evaluating Time Complexity of Optimization Techniques Used in Edge-Based Wireless Body Area Networks for Healthcare Applications <b>Alahakoon, S., and Alobaedy, M.M.</b>	31

Impact of Various Liquid Fertilizers on Growth and Yield Performance of Cauliflower <b>Pathirana, P.D.A., Anusiya, M., and Jeyavanan, K.</b>	32
A Systematic Review of the Pesticidal Properties of Water Hyacinth Extract <b>Abeykoon, M.G.U.U., Kumara, H.M.S.P., Kuma, W.G.A.M., Rathnayake, L.L.U., Rathnayaka, R.M.H.K., and Daranagama, D.A.N.D.</b>	33
The Effects of Yoga on the Mental Health and the Rehabilitation of Sri Lankan Prisoners <b>Hettiarachchi, R.K.G.A.R.P., and Premadasa, K.M.D.N.</b>	34
Early Detection and Management of Depression among University Students <b>Wickramarachchi, T., Thalpe Ahangamage, C.H., Gunathilaka, M.D.S.C., Nawala Hewage, K.T.R., and Maleesha, R.P.G.S.</b>	35
Contributing to the Sustainable Development of Sri Lanka through the Integration of Yoga and Spiritual Practices with Eco-Tourism. <b>Udayanga, W.G.C.D.</b>	36
Investigating Antidote Herbs in Ampara, Sri Lanka <b>Satharasinghe, S.A.C.M., and Daranagama, D.A.N.D.</b>	37
Sound Frequency Treatments for Chili Plant Growth and Yield <b>Madushani, D.</b>	38
Comparative Investigation on the Natural Antibacterial Activity of <i>Zingiber officinale</i> (Ginger) & <i>Allium sativum</i> (Garlic) against Important Food Borne Pathogens; <i>Staphylococcus aureus</i> , <i>Bacillus cereus</i> and <i>Escherichia coli</i> <b>Kuleshika, T.</b>	39
AI-Powered Cricket: Revolutionizing Shot Classification with Convolutional Neural Networks <b>Ranasinghe, N.K., Kruglova, L.V., and Liyanage, P.M.L.</b>	40
Blockchain Technology for Enhancing Transparency and Efficiency in Sustainable Supply Chains <b>Senevirathna, K.M.M.H.B., and Adhikari, S.L.K.</b>	41
The Effect of Coach's Motivation on Novice Athletes' Performance Compared to Pre-Workout Supplements <b>Samarasingha J., Mariani N.samarasi</b>	42
The Impacts of Climate Change on Occupational Safety and Health Law: Emerging Rules to Protect the World of Work <b>Sepncer Vitharana. S.P.H, Wannigama.D.L</b>	43

<b>Management</b>	<b>Pg No.</b>
The Impact of Green HRM Practices towards Integrating Green Reverse Logistics Practices in the Manufacturing Sector in South Asia <b>Karunawardhana, M., and Fernando, P.I.N.</b>	45
Importance of Adapting an Expedite Arbitration Process which Contributes to Innovation And Sustainable Development. <b>Anne, P.N.D.</b>	46
Innovative Applications of Lotus Fibers in the Sri Lankan Fabric Industry: A Sustainable Approach <b>Rathnayaka, R.M.T.D.K.</b>	47
Lean Accounting and Business Performance: A Conceptual Analysis via Prisma Methodology and the Future Research Avenues <b>Ekanayake, S., and Rajapaksha, S.</b>	48
Herbal Products Purchase Intention and Television Advertisements <b>Dasanayaka, K.G.N.M., and Edirisinghe, S.D.</b>	49
Factors Affecting Employee Turnover: Financial Institutions in Sri Lanka <b>Judith, H.F.</b>	50
Study On Professional's Perceived Opinion on the Impact of Market Inputs on Accuracy of Fair Value for Financial Reporting Purpose <b>Prathapasinghe, D., Jayasekara, B.E.A., and Adams, L.M.F.</b>	51
The Tourism Industry and its Economic Impact in Sri Lanka: A Historical Perspective from 1993 to 2022 <b>Jayamanne, D.N.T.</b>	52
Navigating Academic Success: Leadership Styles and Their Influence on Private Higher Education Institutes' Academic Staff <b>Cyril, G.</b>	53
Influence of E-Service Quality of E-Tailors on E-Customer Satisfaction and E-Customer Loyalty Towards Consumer Electronics Products: Moderating Impact of Demographic Variables <b>Kasunthika, R.K., Dissanayake, D.M.R.</b>	54
Nexus between Foreign Direct Investments and Carbon Dioxide (CO <sub>2</sub> ) Emissions in Sri Lanka: The Mediating Role of Trade Openness <b>Hansani, W.M., and Walakumbura, S.H.M.L.</b>	55

Exploring the Promotional Barriers in Wellness Tourism Development: A Case Study of Kandy, Sri Lanka <b>Dilrkshi, I.G.N.P.</b>	56
Factors Affecting E-Commerce Adoption in Small and Medium-Sized Enterprises in Sri Lanka <b>Kasturi Arachchi, C.J.H., and Kasturi Arachchi, G.G.O.</b>	57
The Role of Armed Forces in Flood Management: A Case Study of Ratnapura District <b>Kasturi Arachchi, C.J.H., and Kasturi Arachchi, G.G.O.</b>	58
Upskilling Human Resources as a Futuristic Strategy in the Software Development Industry in Sri Lanka <b>Udawatte, B., and Bhaumik, A.</b>	59
Lean Human Resource Management: Analysis Based on Prisma Methodology and The Future Research Agenda <b>Dissanayake, F., Rajapaksha, S.</b>	60
<b>Education</b>	<b>Pg No.</b>
The Teacher's Role in Accelerating Innovation and Creativity in Students Through Classroom Technological Learning-Teaching Activities for the 21st Century to Promote Sustainable Development <b>Abilash, K., Majid, M.H.M., and Mahthi Hassan, N.</b>	62
Impact of Smartphone Addiction on Educational Achievement among Sri Lankan Advanced Level Students <b>Weerasinghe, S.R., Vivekananda, B., and Herath, H.M.C.J.</b>	63
Students' Perspectives and Enrollment Intentions Towards Modern Higher Education Institutions <b>Kumarasinghe, K.K.A.H., Pathirathna, Y.H.P.S.S., Niranjala, T.A.S.H., and Perera, L.A.P.C.</b>	64
Enhancing Elementary ESL Learners' Writing Skills through Translanguaging: A Mixed-Methods Study <b>Imbulpe, Y.S.</b>	65
Role of Mentoring in Sri Lankan Schools and Its Contribution in Grooming English as a Second Language for Pre-Service Teachers; What Needs to be Done? <b>Sooriyampola, M., Kodithuwakku, G., and Agarwal, N.</b>	66
Improving Pupils' Reading Difficulties using Phonic and Syllabic Methods <b>Saleem, I.B., and Kasturi Arachchi, C.</b>	67

The Impact of Bilingual Education on Language Development in Preschool Children: A Case Study of English and Sinhala Medium Preschools in Matale <b>Kulathunga, I.K., and Kasturi Arachchi, C.</b>	68
Challenges and Barriers for Improving Student Numerical Literacy in Early Childhood Education Centers: A Case Study from Colombo Pre Schools, Sri Lanka <b>Liyana Palliyage, S.T., and Kasturi Arachchi, C.</b>	69
English as a Second Language: The Utilization of Visual Teaching and Learning Aids in Teaching Phonics in City Preschools, Sri Lanka. <b>Vithanage, C., and Kasturi Arachchi, C.</b>	70
Exploring the Role of AI Technology in Sri Lankan School Education for Sustainable Development <b>Illangasingha, I.P.D.</b>	71
Utilizing Poetry for Vocabulary Acquisition in English as a Second Language (ESL) Classrooms: An Empirical Study <b>Jayawardena, H.M.C.P.</b>	72
Technological Leadership Challenges Faced by Principals in Enhancing the Use of Technology in the Teaching-Learning Process <b>Nireskumar, M.</b>	73
The Impact of Play-Based Learning on Cognitive and Social Development in Early Childhood <b>Shariffdeen, H.Z., and Kasturi Arachchi, C.</b>	74
The Effectiveness of Providing Teachers' Feedback on Students Academic Performances and Behaviors <b>Nithya, S., and Kasturi Arachchi, C.</b>	75
The Effect of Gender on Second Language Acquisition <b>Narasinghe, N.M.M.D., and Hettiarachchi, R.C.K.</b>	76
Effectiveness of Learner Centered Motivational Strategies on English Language Proficiency <b>Hemachandra, K.L.C.S.</b>	77
Mental Well-Being of Sri Lankan Teaching Assistants Working in Special Education Schools: A Case Study <b>Kasturi Arachchi, C.J.H., and Kasturi Arachchi, G.G.O.</b>	78
Instructional Leadership of Principals and Professional Development of Teachers: Special Reference to Schools in the Colombo Education Zone <b>Kasturi Arachchi, C.J.H., Kasturi Arachchi, G.G.O., and Kasturi Arachchi, C.</b>	79

Exploring the Role of Management Professional in Outcome-Based Management Education; Sri Lankan University Educators' Perspective <b>Piyasena, K.G.C.C., Mohommed, L.A., and Danapala, R.M.</b>	80
A Study of the Effects of Tricks Used by Adults to Frighten and Control Young Children <b>Shareena, S.D.</b>	81
The Efficiency of Read-to-Me App on Enhancing Reading Comprehension Skills in English Language of Secondary School Students in Sri Lanka; With Special Reference to Kandy Educational Zone in Central Province <b>Midipolawatta, D.P.</b>	82
Effectiveness of Using Language Games on Development of Vocabulary: A Research Conducted Among Grade 4 Students of Wimaladharma National School <b>Dunukara, N.</b>	83
Integrating Sustainable Development Goals in Higher Education: Enhancing English Language Proficiency and 21 <sup>st</sup> Century Skills <b>Wickremasinghe, F.N., Neranjani, E.S.</b>	84
<b>Social Sciences</b>	<b>Pg No.</b>
Mindful Resilience: Applying Buddhist Nirvana for Mental Freedom <b>Sunandabodhi, B.</b>	86
Transcending Suffering: The Role of Nirvana in Holistic Human and Social Development <b>Sunandabodhi, B.</b>	87
The Psychological Study of Academic Problems Faced by Arts Students Due to the Current Economic Crisis in Sri Lanka. <b>Dilshan, K.G.I.</b>	88
Does Public Concern about Climate Change Affect International Environmental Law? The Great Jurisprudence <b>Spencer Vitharana, S.P.H., Wishwajith, W.M., and Kandegama, W.</b>	89
Role Reversal in Drama Therapy: Enhancing Empathy and Emotional Understanding among Institutionalized Children in Sri Lanka <b>Vidanagamage, S.D., Bhaumik, A., and Irugalbandara, A.I.</b>	90
Decoding Facebook Narratives of Premarital Cohabitation and Marital Stability - Sri Lankan Female Facebook Users' Perspectives <b>Fernando, W.G.S.T.</b>	91

Association between Self-Efficacy and Public Speaking Anxiety among the Adults Living in Sri Lanka <b>Perera, H.A.R.T.N.</b>	92
Social Media as a Form of Election Campaigning in Sri Lanka: Trends, Prospects and Challenges <b>Siriwardhana, I.W.</b>	93
Exploring How Early Attachment with Caregivers Influences Emotional and Social Development <b>Ilham, S.M.</b>	94
Illegal Narcotics and Sri Lankan Society: Experiences of Three Forces and Police <b>Kasturi Arachchi, C.J.H., and Kasturi Arachchi, G.G.O.</b>	95
Assessing the Impact of Yoga Practices for a Healthy Lifestyle: with Reference to Sri Lankan Secondary Education <b>De Zoysa, A.H.N.</b>	96
The Impact of Emotional Intelligence on Stress Management of IT Employees in the Workplace <b>De Zoysa, A.H.N.</b>	97
Foreign Tourist Preferences for Local Yoga Instructors; A Qualitative Exploration in Eastern and Southern Provinces of Sri Lanka <b>Uluwaththa, K.H.U.D.M.S., and Perera, P.K.U.</b>	98
Navigating the Future of Online English Language Teaching: A Case Study on Perceptions and Challenges in the Post-Pandemic Era <b>Anwer, M.A.S., and Jayawardana, H.M.H.N.M.</b>	99
Impact of Digital Libraries on Academic Research <b>Chandrasena, S.</b>	100

**ABSTRACTS - MEDICINE**

---



## **Factors Associated with the Psychological Distress of Working from Home Among Sri Lankan Information Technology (IT) Professionals**

***Rasangi, M.L.P.<sup>1\*</sup>***

*<sup>1</sup>Department of Nursing, Faculty of Nursing, Lincoln University College, Malaysia.*

*[pubudika1991rasangi@gmail.com](mailto:pubudika1991rasangi@gmail.com)*

Innovative practices in the information technology (IT) field have influenced how people work and live. Through after-hours, work-related contact, modern communication technology blurs the lines between work-life and family-life contexts. Advances in communication technology have significantly and permanently changed the nature and character of work. Technology has made it possible for employees to perform their job roles as opposed to in an office setting. Sri Lankan private companies, especially those in telecommunications and software development, started to work from home during the COVID-19 period, and they continued it during the economic pandemic period as well. This study was conducted to explore factors associated with the psychological distress of remote working among Sri Lankan IT professionals in the context of the economic crisis in Sri Lanka. A qualitative-phenomenological study design was used. Face-to-face, semi-structured interviews that included open-ended questions were conducted via Zoom technology with IT professionals in Colombo district who were working from home. Participants were recruited using the purposive sampling technique after obtaining ethical approval from the Ethics Review Committee, KAATSU International University, Sri Lanka. Request email with the information sheet and voluntary consent were obtained. All data was kept anonymously and confidentially. Each semi-structured interview was video recorded and then transcribed verbatim. Twenty-five interviews were conducted until the data saturation point was achieved. Thematic analysis was employed for qualitative data analysis. Trustworthiness was ensured by enhancing credibility, transferability, dependability, and confirmability. Three main themes and eight sub-themes were identified. The main themes were lack of support, employee safety culture, and lack of resources. Also, they reported that job insecurity, a heavy workload, and a blaming culture aggravated the psychological distress of working from home. Due to a variety of obstacles, including transportation concerns, the economic crisis in Sri Lanka created a unique situation where a few workers were compelled to abruptly switch from traditional work to remote work in order to maintain professional productivity levels as they did prior to the crisis. This study emphasized the need for future interventions and provides fresh perspectives on how people might maximize their experiences at work when working remotely in a particular setting. Remote working has been directly affected by the psychological status of different categories of professionals across the world. In order to address escalating psychological distress among IT professionals through the provision of increased resources, ensuring a safe employee culture, including a blaming-free, shaming-free, and bullying-free culture, and an adequate support system are paramount. Peer support, a trustworthy system to report bullying and blaming, and having an open communication channel enable IT professionals to feel less distress and effectively cope with the demands of their work.

**Keywords:** IT Professionals, Psychological Distress, Working from Home

## **Medicinal Use of Milk and Dairy Products During Pregnancy: A Literature Review**

**Madumekala, A.L.H.S.\*<sup>1</sup>, Kaldera, H.P.I.J.<sup>1</sup>**

<sup>1</sup>*Faculty of Indigenous Medicine, Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka.*

*inokakaldera@gwu.ac.lk, gwu-bams-2020-27@gwu.ac.lk*

Throughout the period of pregnancy, Ayurveda advises the mother to follow a specific diet and regimen designed to meet requirements and needs of pregnant women. This diet is vital to nourish the mother, support the growth and the development of the fetus, and aid in the formation of breast milk. Among dietary recommendations in Ayurveda, milk is identified as the most important component. This study aims to analyze and summarize Ayurveda perspectives on the consumption of milk and dairy products during pregnancy. And this endeavors to identify specific health benefits for both mother and developing fetus as recommended by Ayurveda texts. This review systematically analyzed classical Ayurveda texts, including Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya to gather data on the medicinal use of milk and dairy products during pregnancy. The data were extracted and analyzed to identify properties, benefits, and recommended uses of these products, with a focus on formulations where milk is processed with various herbs. The findings were organized according to each month of pregnancy, detailing their specific uses. According to Ayurveda, milk is considered as one of the best foods during pregnancy, essential for consumption throughout the nine months. Ayurveda dietary practices recommend specific milk and dairy products such as ghee, butter, and milk combined with herbs like *Sida cordifolia*, *Asparagus racemosus*, *Glycyrrhiza glabra* and other medicinal plants, tailored to each month of pregnancy. These preparations aim to promote the growth of *Dhatus* (bodily tissues), cool the body, nourish both mother and fetus, enhance strength, and support lactation process of mother. Additionally, formulations such as milk mixed with honey and gruel prepared with milk and ghee are recommended, each corresponding to specific stages of pregnancy. This review emphasizes the critical role of milk and dairy products, complemented by specific herbs, in Ayurveda dietary practices during pregnancy. The findings highlight that these practices are designed to support maternal health, fetal growth, and lactation, tailored to each month of pregnancy. Despite the valuable insights gained, there remains a significant gap in empirical research validating these traditional practices. Future studies should focus on rigorously testing these Ayurvedic recommendations in modern clinical settings to assess their effectiveness and safety. This research is essential for developing comprehensive prenatal care strategies that integrate both traditional and contemporary approaches, ultimately enhancing maternal and fetal health outcomes.

**Keywords:** Ayurveda, Fetal Growth, Maternal Health, Milk and Dairy Products, Pregnancy.

## **Phytochemistry and Thin Layer Chromatography of Avipattikar Choorna Used in the Management of Gastritis (Amlapitta)**

**Ganesalingam, P.<sup>1\*</sup>, Jayasuriya, W.J.A.B.N.<sup>1</sup>, Herath, H.M.D.R.<sup>1</sup>, Arawwawala, L.D.A.M.<sup>2</sup>, Uluwaduge, D.I.<sup>3</sup>, Peiris, K.P.P.<sup>4</sup>**

<sup>1</sup>Department of Pharmacy and Pharmaceutical Sciences, Faculty of Allied Health Sciences, University of Sri Jayewardenepura, Sri Lanka.

<sup>2</sup>Herbal Technology Section, Industrial Technology Institute, Malabe, Sri Lanka.

<sup>3</sup>Department of Basic Sciences, Faculty of Allied Health Sciences, University of Sri Jayewardenepura, Sri Lanka.

<sup>4</sup>Department of Shalya-Shalaky, Faculty of Indigenous Medicine, Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka.  
[paramithaganesh08@gmail.com](mailto:paramithaganesh08@gmail.com)

Gastritis (Amlapitta) is a prevalent illness in the modern world. Gastritis is treated using an ayurvedic polyherbal formulation called Avipattikar choorna. The natural therapeutic characteristics of Avipattikar choorna enhance gut health, remove acid from the intestines and enhance digestion. It consists of twelve ingredients, namely, the rhizome of *Zingiber officinale* (Ginger), the seed of *Embelia ribes* (Walangasal), the fruit of *Piper longum* (Long pepper), the fruit (Pericarp) of *Terminalia chebula* (Aralu), the fruit (Pericarp) of *Terminalia bellirica* (Bulu), the fruit of *Phyllanthus emblica* (Nelli), the seed of *Piper nigrum* (Black pepper), the fruit of *Elettaria cardamomum* (Karada mungu), the leaf of *Cinnamomum tamala* (Tejapatra), the flower of *Syzygium aromaticum* (Lavanga), the root of *Operculina turpethum* (Thirassawalu) and sugar. In our previous studies, *in vitro* gastroprotective activity of Avipattikar choorna and its formulated tablets were evaluated. The aim of the present study is to determine the qualitative and quantitative phytochemical profiles and to perform thin layer chromatography (TLC) fingerprinting of Avipattikar choorna. The Avipattikar choorna was purchased from a registered ayurvedic pharmacy. About 15 g of Avipattikar choorna was refluxed with 100 ml of distilled water to get the aqueous extract of Avipattikar choorna. Qualitative phytochemical analysis of the aqueous extract of Avipattikar choorna was performed according to the standard methods. The phenols, alkaloids, tannins, saponins, terpenoids, cardiac glycosides, steroids and flavonoids were tested. Quantitative phytochemical analysis of the Avipattikar choorna was performed using standard protocols. The total phenolic content was determined by the Folin-Ciocalteu method against the gallic acid standard. Phenols, alkaloids, flavonoids, cardiac glycosides, saponins, terpenoids, tannins and steroids were detected in the aqueous extract of Avipattikar choorna. Numerous investigations have confirmed that phytochemicals possess physiological and therapeutic properties, which can be utilized to treat a variety of illnesses. The quantitative phytochemical analysis revealed that the total phenolic content, alkaloids, flavonoids, saponins, and tannins were 35.62±0.65 mg Gallic acid equivalent/g, 14.83±1.23 mg/g, 42.99±1.39 mg/g, 21.36±0.68 mg/g, and 43.22±0.58 mg/g, respectively. The presence of the ingredients in Avipattikar choorna was confirmed using the development of TLC fingerprint. In conclusion, different groups of phytochemicals were identified in Avipattikar choorna. These phytochemicals likely contribute to the gastroprotective activity of the choorna. In conclusion bioactivity guided fractionation of Avipattikar choorna is recommended in future studies.

**Keywords:** Avipattikar Choorna, Phytochemicals, Thin Layer Chromatography, Aqueous Extract

## **Evaluation of the Prevalence in Gastritis Among Selected Sample of Teenagers in the Area of Kuliypitiya Udawela**

***Thathsara, J.A.C.P.<sup>1\*</sup>, Nayananda, W.P.M.H.D.<sup>1</sup>***

*<sup>1</sup>Faculty of Indigenous Medicine, Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka.*

*chamith1thathsara@gmail.com, Maduthya@gmail.com*

Gastritis is an inflammatory condition on the epithelial lining of the stomach, which is very common in society. This causes burning ache, nausea, or vomiting. Gastritis is a prominent disease among teenagers that affects students' education and the Country's future. The objective of this research is to evaluate the prevalence and factors affecting gastritis among teenagers in Kuliypitiya Udawela region. A sample of 62 students between the ages of 14 -19, from schools in the region of Kuliypitiya Udawela, were recruited, and a closed-ended questionnaire was provided to collect the necessary data. Major causes of gastritis, such as inappropriate food habits, higher intake of oily and spicy foods, autoimmunity, chronic illness and usage of drugs, bacterial infections, lack of sleep, and stress, were used in the questionnaire as criteria for evaluation. The collected data was analyzed using Google Forms and MS Excel, and the data revealed that 61.3 % of students have gastritis. The majority of students have no chronic diseases and no consumption of long-term medicine. 33.9 % of students do not eat their breakfast, and 54.8 % of students have unhealthy diets like fast food, short-eats, or only having tea in the morning. 45.2 % of students are eating healthy breakfasts, but most students are eating late breakfasts around 9:00 am to 10:30 am. Students are having a healthy lunch and dinner at approximately the proper time. Only 14.5 % of students aren't having a proper dinner. 8.1% of students consume oily foods, while others have spicy foods or fast foods for dinner. 40.3 % of students are feeling gastritis more in the morning, only 11.3 % feel it in the evening, and 9.7 % feel it at night. The rest feel gastritis at midnight, when eat oily or spicy foods, or when missing meals. 45.2 % of students experience gastritis when they do not eat any meals. A percentage of 40.3 % of students experience gastritis while feeling stressed. 16.1 % of students experience gastritis when they get an increased workload or exams. Most students sleep around 6–8 hours at night. However, 25.8 % of students experience gastritis when they do not sleep well. According to the results, it can be concluded that unhealthy dietary habits like skipping breakfast, taking more unhealthy diets such as fast foods, which are high in oil and spiciness, or taking only tea or having late breakfast at the school interval time were identified as common habits among students who are having gastritis. These dietary habits increase the secretion of gastric juice, causing irritations in the gastric mucosa. Increased workload, lack of sleep and stress have also affected gastritis in those teenagers. Body hormones and neurotransmitters get changed due to stress, and decrease gastric renewal, and atrophy of gastric mucosa may occur. Bad dietary habits, increased workload, stress, and sleep can be identified as common factors causing gastritis in these teenagers. It can be suggested to increase the awareness of students on gastritis and the advantages of having a healthy diet at the proper time to get rid of gastritis.

**Keywords:** Breakfast, Dietary Habits, Gastritis, Students, Teenagers

## **Observation of Health-Related Quality of Life in Patients Undergoing Hemodialysis and Peritoneal Dialysis in Dambulla, Hettipola and Girandurukotte Area Clinic Visits**

***Fernando, R.D.V.S.<sup>1\*</sup>, Jayasekara, J.V.P.<sup>2</sup>***

*<sup>1</sup>Department of Pharmacy, Faculty of Pharmacy, Lincoln University College, Malaysia.*

*<sup>2</sup>District Base Hospital, Dambulla, Sri Lanka.*

*[priyanthaj309@gmail.com](mailto:priyanthaj309@gmail.com), [gamunukumara1981@gmail.com](mailto:gamunukumara1981@gmail.com)*

Chronic Kidney Disease (CKD) is a progressive condition that significantly impacts patients' lives. Studies show that the health-related quality of life (HRQOL) for dialysis patients is considerably lower compared to the general population or those who have undergone kidney transplantation. This study aimed to compare the HRQOL within a year for approximately 492 patients initiating hemodialysis (HD) or peritoneal dialysis (PD) through a prospective, selected regional cross-sectional study. The primary objective was to compare the HRQOL between HD and PD patients over the one- year period following dialysis initiation, as well as to assess the differences within each dialysis modality. The secondary objective of this study was to identify the factors associated with persistently impaired HRQOL in patients undergoing dialysis. Patients with cognitive impairment and psychiatric diseases were excluded from the study. Special data collection was conducted at the hospital level, specifically from Base hospital, Dambulla, District hospital Hettipola and District hospital Girandurukotte. The data collection instruments included questionnaires assessing various aspects of HRQOL. These aspects encompass the effect of kidney disease, burden of kidney disease, work status, cognitive functions, quality social interactions, sexual function, sleep, social support, dialysis staff encouragement, patient satisfaction, physical functioning, social functioning, energy, fatigue and overall health. Both adjusted physical functioning scores were significantly higher in PD patients than in HD patients (HD vs. PD:  $67.9 \pm 12.5$  vs.  $72.1 \pm 12.1$ ,  $P < 0.001$  respectively). Compared with HD patients, PD patients had significantly higher adjusted mean scores at 12 months in. work status (HD vs. PD: 23.6vs. 31.3,  $P = 0.001$ ), cognitive function (HD vs. PD: 83.7vs. 85.2,  $P = 0.01$ ), quality of social interaction (HD vs. PD: 67.0vs. 68.3,  $P = 0.02$ ), social support (HD vs. PD: 60.1vs. 58.2 = 0.03), dialysis staff encouragement (HD vs. PD: 85.4 vs. 87.60.001, pain (HD vs. PD: 66.7 vs. 76.8  $P < 0.001$ .. At 12 months, the adjusted mean scores in the three domains, PD patients had significantly higher mean scores on the two domains of sexual function (HD vs. PD: 60.9 vs. 75.0,  $P = 0.04$ ). The present study provides cross-sectional confirmation that patients undergoing PD and HD patients have equivalent health-related quality of life. Although PD performed better in specific domains such as bodily pain, emotional functioning and mental health Improvement in both groups could be achievable if pain/discomfort and anxiety/depression were more effectively treated. It is an outstanding service for CKD patients provided by Nephrologists and other health professionals, along with supportive staff who pay attention to the actual preferences and priorities of dialysis patients. In conclusion, regular monitoring of HRQOL is crucial for improving the well-being of dialysis patients.

**Keywords:** Chronic Kidney Disease, Health – Related Quality of Life, Hemodialysis, Peritoneal Dialysis

**A Study on Antibiotic Sensitivity Pattern of Gram-Negative Enteric Organisms Isolated from Patients with Urinary Tract Infection: A Study in Teaching Hospital, Kurunegala, Sri Lanka**  
**Tennakoon, K.B.N.A.\*<sup>1</sup>, Niwanthi, R.M.U.T.<sup>1</sup>, Dharmasena, P.A.S.H.<sup>1</sup>, Upasena, G.K.W.P.<sup>1</sup>, Attanayake, A.M.C.K.P.<sup>1</sup>**

<sup>1</sup>Department of Pharmacy, Faculty of Pharmacy, Lincoln University College, Malaysia.  
[anuradha19760928@gmail.com](mailto:anuradha19760928@gmail.com)

The increasing prevalence of antibiotic-resistant *Enterobacteriaceae* species worldwide poses a serious threat to the therapeutic management of clinical cases of urinary tract infections. Most prevalent etiological cause for urinary tract infections were Gram-negative bacteria. More than 80 % of acute urinary tract infections were *E. coli*. 5 % -10 % of urinary tract infections were caused by *Staphylococcus saprophyticus*, *Klebsiella*, *Proteus*. This study was conducted to determine the sensitivity pattern of gram-negative enteric organisms (GNEO) isolated from patients with urinary tract infections at the Teaching Hospital, Kurunegala, Sri Lanka. Understanding the antibiogram profile and prevalence of these isolates is essential for designing an appropriate treatment plan. This study was conducted through secondary data collection at the Department of Microbiology, Teaching Hospital Kurunegala, from April to November 2022. The identification of bacterial isolates was performed using the standard biochemical profile of the organisms. A total of 198 mid-stream urine samples were collected and identified using conventional biochemical tests, following the Clinical and Laboratory Standard Institute (CLSI) guidelines. Antimicrobial susceptibility testing (AST) was performed using the standardized diffusion method, interpretation conducted according to CLSI guidelines. The p-value was considered as statistically significant. Most participants were inpatients (92.42 %), while 7.58 % were outpatients. A higher proportion of the participants were female (56.06 %), compared to males (43.94 %). Most UTI cases were recorded among individuals aged 55-74 years, accounting for 50 % of the total cases. The lowest number of cases was observed in individuals over the age 75, constituting 4.04 % of the total cases. The order of antibiotic sensitivity was as follows: Netilmicin (90.91 %), Nitrofurantoin (88.38 %), Gentamicin (88.38 %), Augmentin (57.07 %), Norfloxacin (54.04 %), Cefotaxime (52.82 %), Ceftazidime (51.01 %), Cefuroxime (50.00 %). The highest resistance to GNEO was observed with Nalidixic acid, at a rate of 60.10 %. In conclusion, most of the patients were adults. Most of the patients were included in age group 55-74 years. Females were more commonly affected than males. Most of the patients were inward patients. Six drugs were resistance in males. Netilmicin, Gentamicin, and Nitrofurantoin are the most effective antibiotics for treating GNEO. Nalidixic acid should be omitted for the treatment of GNEO due to its high residence rate. The present study didn't analyze species-specific antibiotic patterns and Extended Spectrum Beta – Lactamase (ESBL) producing *Enterobacteriaceae*. The analysis can be further refined based on patients with chronic diseases, such as those with oncology, nephrology, and urology cases as most of these patients were catheterized. Additionally, women were categorized based on pregnancy status, as indicated by details from the obstetrics ward.

**Keywords:** GNEO, ABST Pattern, Urinary Tract Infection, Gram-negative, Antibiotic Resistance

**Study of Antibiotic Usage for Neonates in Special Baby Care Unit in Ampara District  
General Hospital, Sri Lanka**

***Pathiraja, P.A.J.K.<sup>1\*</sup>, Abeyrathna, A.H.M.R.P<sup>1</sup>, Hettiarachchi, H.A.J.U.K.<sup>1</sup>, Kotuwegedara,  
J.D.K.G.<sup>1</sup>, Karunarathna, K.A.P.R.<sup>1</sup>, Shiffana, S.<sup>2</sup>***

*<sup>1</sup>Department of Pharmacy, Faculty of Pharmacy, Lincoln University College, Malaysia.*

*<sup>2</sup>School of Medical Laboratory Technology, Peradeniya, Sri Lanka.*

*[jpathiraja@gmail.com](mailto:jpathiraja@gmail.com)*

Antibiotics play a crucial role in neonatal units for treating various clinical conditions. However, the absence of standardized guidelines for their use among neonates has led to careless and unnecessary antibiotic administration, contributing significantly to the alarming rise in antibiotic resistance, which poses a serious public health risk. Developing and implementing improved guidelines for antibiotic use in newborns is therefore imperative. This study aimed to assess the pattern of antibiotic utilization among neonates in the Special Baby Care Unit of General Hospital, Ampara in Sri Lanka. A descriptive cross-sectional study was conducted in a single centered study from October 2022 to March 2023. A total of 51 neonates who were receiving antibiotics during hospital stay in the neonatal unit were included in the study. The demographic data and detailed drug information (including drug names, dosage forms, and doses, dosing intervals, routes of administration, indications, duration and frequency of administration) were extracted from medical records. Antibiotic use trends were evaluated using the metric of Days of Therapy per 100 patients-Days (DOT/100PD), with statistical significance set p-value <0.05. A total of 51, males were higher than females. The mean (SD) age and birth weight at admission were 4.74 (6.26) days and 2552.25 (723) g, respectively. There was a notable medication burden, particularly among term infants, followed by preterm infants, extreme preterm infants, and moderate to late preterm infants. In total, 123 drugs were prescribed, encompassing 12,190 doses of 13 different antibiotics. Benzylpenicillin, Cefotaxime, Flucloxacillin and Gentamicin were the most frequently prescribed antibiotics. More than half of the participants received two antibiotics, and a quarter received three antibiotics. The most frequently prescribed categories of three-drug combinations were Penicillins, Cephalosporins and Aminoglycosides. Total prescribed drug doses were higher in term infants followed by preterm infants, moderate to late preterm infants and extreme preterm infants. Mean prescribed drug doses were highest in extreme preterm infants, followed by term infants, moderate or late preterm infants, and preterm infants. Antibiotic dosing intervals were longest among extreme preterm infants, followed by preterm infants, term infants and moderate to late preterm infants. The most commonly administered antimicrobial drugs per patient per day were Benzyl penicillin, Cefotaxime, and Piperacillin with Tazobactam. Neonatal sepsis was the primary reason for admission to the neonatal unit, followed by preterm birth, neonatal meningitis, and small for gestational age. Duration of drug administration was longest in term infants followed by moderate to late preterm infants, extreme preterm infants and preterm infants. Regular periodic surveys are essential to promote rational usage of drugs in neonates because of their immature physiological functions and to minimize adverse drug reactions. Establishing therapeutic treatment guidelines is crucial to reducing antibiotic overuse and optimizing drug utilization practices.

**Keywords:** Antibiotic, Neonates, Utilization Pattern



**Evaluating the Level of Demanding a Valid Prescription and Obtaining Patient History While Dispensing Antibiotics in Selected Community Pharmacies in the Kaduwela District Secretariat, Sri Lanka**

***Galaudaarachchi, G.A.L.H.<sup>1\*</sup>, Wickramanayake, A.G.B.E.U<sup>1</sup>, Madushanka E.U.<sup>1</sup>, Nayanathara, R.K.A.B.<sup>2</sup>***

*<sup>1</sup> Department of Biomedical Science, Faculty of Health Sciences, KIU, Sri Lanka.*

*<sup>2</sup> Department of Pharmacy, Faculty of Pharmacy, Lincoln University College, Malaysia.*

*lahirugalaudaarachchi@gmail.com, [buddhini@lincoln.edu.lk](mailto:buddhini@lincoln.edu.lk)*

Even though the invention of antibiotics represents one of the greatest achievements of modern medicine in treating bacterial infections, antibiotic resistance has become a critical global health challenge. The overuse and misuse of antibiotics in treatments can pose severe public health risks by leading to antimicrobial resistance particularly in third world developing countries such as Sri Lanka. In response, the government and regulatory authorities of Sri Lanka, such as the National Regulatory Authority (NMRA), have implemented new policies and measures to curb antibiotic resistance, such as banning the dispensing of antibiotics over the counter. Despite these restrictions in place, easy access to antibiotics without prescriptions and inappropriate dispensing practices remain key factors contributing to antibiotic resistance. Community pharmacies, due to their high public accessibility and affordability, play a pivotal role in this issue. Pharmacists and associate pharmacy staff play a critical role in patient counseling and correct dispensing practices, which are crucial in mitigating the misuse of antibiotics. The purpose of this study was to determine if community pharmacy staff in the Kaduwela District Secretariat region need a prescription in order to dispense antibiotics, as well as to examine the counseling procedures used by these pharmacy staff. From March to May 2024, 71 community pharmacies in the Kaduwela District Secretariat area participated in this simulated patient research. A simulated patient presented specific product requests for Azithromycin tablets, Ciprofloxacin tablets, and Amoxicillin syrup. The data was recorded by the simulated patient after each over the counter purchase. The analysis was conducted using P values and frequency tests with SPSS version 20. More than half of the respondents (52.0%) were female. The majority of the pharmacists and pharmacy assistants (72.0 %) didn't demand a prescription for dispensing antibiotics. Nearly all pharmacies (82.0 %) dispensed antibiotics without a prescription. Only 18 % of pharmacies rejected dispensing antibiotics without a prescription. Only 14 % of community pharmacists took the medical and lifestyle history of simulated patients. During this study period, only 24.0 % of community pharmacists provide counseling or advice on antibiotics during dispensing. However, none of the pharmacists informed patients about the possible adverse effects of the antibiotics. The level of demanding a prescription when dispensing antibiotics in community pharmacists in the Kaduwela District Secretariat area was found to be inadequate, with the majority of pharmacists not requiring a prescription for dispensing antibiotics. Additionally, the provision of counseling about antibiotics by community pharmacists in Kaduwela, Sri Lanka, was notably low. These significant issues, including the lack of prescription enforcement and insufficient patient counseling, must be urgently addressed by health authorities and policymakers to protect patient safety.

**Keywords:** Antibiotics, Counseling, Community Pharmacists, Prescription, Self-Medication



**Prevalence of Self-Medication by Parents/Guardians of Children Aged 12 Years or Below,  
Attending Thomas Gall School, Karapitiya, Sri Lanka**

***Gunasekara, G.W.P.P.<sup>1\*</sup>, Goshika, H.K.G.G.<sup>1</sup>, Ruwan, D.W.D.<sup>1</sup>, Paranavithana, R.H.<sup>1</sup>***

*<sup>1</sup> Department of Pharmacy, Faculty of Pharmacy, Lincoln University College, Malaysia.*

*[pradeepprasannagunasekara43@gmail.com](mailto:pradeepprasannagunasekara43@gmail.com)*

Self-medication refers to the practice of parents or guardians administering medication to their children without consulting a healthcare professional. The World Health Organization estimates that the self-medication prevalence ranges from 12.7% to 95% in the developing countries. Variations in self-medication prevalence are related to differences in study populations, definitions used, data collection methods, healthcare access, regulations, culture and economic factors. In Sri Lanka, limited data exists on self-medication practices. However, available research indicates high self-medication rates in urban areas, with 64% of households reporting self-medication practices. This study aims to address the evidence gap regarding self-medication in Sri Lanka by investigating its prevalence, reasons, degree of misuse, medication types, information sources and associated factors among parents of self-medicating children aged 12 years or younger attending Thomas Gall School in Karapitiya, Galle, Sri Lanka. The Health Belief Model will serve as the theoretical framework guiding variable selection and data analysis. A cross-sectional study was conducted using a structured questionnaire administered to approximately 200 parents / guardians of children attending Thomas Gall School. Although the ideal sample size was 186, 114 parents responded to the questionnaire from the total parent population at Thomas Gall School. Data were collected on socio-demographic factors, medication use patterns, and reasons for self-medication. Descriptive statistics were conducted using SPSS version 20.0. Several limitations of the study include small sample size, selection bias, self-report bias, social desirability bias, limited regional generalization, cross-sectional design, and response rate. In this cross-sectional study, it was found that 84 out of 114 parents engaged in self-medication, resulting in an overall self-medication prevalence of 74% among parents of students at Thomas Gall School in Karapitiya, Sri Lanka. Socio-demographic factors like higher parental education level, unemployment, older child age and having multiple children were associated with an increased likelihood of self-medication. The study revealed that 71% (n=81) of respondents were female. Within the female subgroup, the prevalence of self-medication was 73% (n=59), compared to 76% (n=25) among males. A significant portion, 61% of respondents, reported their child having experienced illness in the past 3 months, with common conditions including cough, headache, running nose and fever. Paracetamol was the most frequently used medication, often obtained from pharmacies without prescriptions. Despite 86% of self-medicated parents having higher education, the primary reasons for avoiding medical diagnosis included time constraints (21%), using old prescriptions (19%) and financial difficulties (18%). These findings suggest that self-medication is a common practice among parents/ guardians of children attending Thomas Gall School. This study contributes crucial local prevalence data and identifies education level as a risk factor for pediatric self-medication in Sri Lanka. Further research is necessary to ascertain the long-term impacts of self-medication on children's health given the observed high rates and associated outcomes.

**Keywords:** Medication, Paracetamol, Prevalence, Self-Medication, Socio-Demographic

## **Understanding and Addressing GP Burnout: A Qualitative Study of General Practitioners in the Western Province of Sri Lanka**

***Wijewardana, D.<sup>1\*</sup>, Vidanapathirana, J.<sup>2</sup>, Bhumik, A.<sup>3</sup>***

*<sup>1</sup>National Cancer Control Programme, Ministry of Health, Sri Lanka*

*<sup>2</sup>Directorate of Planning, Ministry of Health, Sri Lanka*

*<sup>3</sup>Lincoln University College, Malaysia*

*duminduwijewardana@gmail.com*

Burnout among General Practitioners (GPs) is a significant concern, affecting both personal well-being and professional performance. In Sri Lanka, GPs practice in their clinics as either full-time private sector GPs or as part-time GPs while working in the government health sector during morning hours. Notably, more than 40 percent of outpatients are managed by these GPs, whether full or part-time. This study explores the knowledge, perceptions, and experiences of GPs regarding burnout in selected clinics in the Western Province of Sri Lanka. The one-to-one interviews using semi structured questions focused on understanding GP burnout, its symptoms, causes, impacts, coping mechanisms, and potential solutions. Each interview was transcribed verbatim, ensuring the accuracy and completeness of the data collected. Thematic analysis was employed as the statistics model to analyze patterns and themes within the data, providing a detailed understanding of the experiences and views of the participants. The results obtained were grouped into broader themes to show the different levels of knowledge of the general practitioners. Careful analysis showed that this GP population had good knowledge on burnout, and they perceived burnout as stress leading to physical and emotional exhaustion, which reduces professional efficacy. The most familiar symptoms encountered by this population were fatigue and irritability. Primary causes of burnout among these GPs included high patient load, long working hours, financial burdens, and lack of resources. Burnout significantly impacted mental health, job satisfaction, and patient care. While GPs were aware of coping methods such as mindfulness, regular exercise, and seeking support from colleagues, many reported not having time to implement these strategies. The qualitative study concluded that this population of GPs has a solid understanding of burnout, recognizing it as an issue that affects their professional lives and well-being. The study highlighted a clear awareness among these GPs of the symptoms and causes of burnout, emphasizing the role of external factors such as workload and financial pressures. Despite their knowledge, the practical application of coping strategies was hindered by lack of time. This suggested a gap between awareness and action. These findings show the importance of addressing system issues within the healthcare environment to enable GPs to effectively manage burnout and maintain high standards of patient care. Recommendations to reduce burnout included implementing better support systems, reducing financial burdens, and promoting other resources to enhance mental health of GPs. Future research should focus on evaluating the effectiveness of existing strategies and exploring additional innovative solutions to mitigate GP burnout.

**Keywords:** GP Burnout, Healthcare Professionals, Mental Health, Qualitative Research, Stress

**To Evaluate the Physical and Chemical Parameters and Microbial Stability of  
Selected Semisolid Extemporaneous Preparations which are being Dispensed at  
Skin Clinic National Hospital, Kandy**

***Munasinghe, R.<sup>1\*</sup>, Katekumbura, T.<sup>1</sup>, Mahagedara, M.<sup>1</sup>, Bandaranayake, O.<sup>1</sup>, Rajani, I.<sup>1</sup>***

*<sup>1</sup>Department of Pharmacy, Faculty of Pharmacy, Lincoln University College, Malaysia.*

*[roshanmunasinghaph@gmail.com](mailto:roshanmunasinghaph@gmail.com)*

In Sri Lanka, some semisolid preparations are made extemporaneously and dispensed to patients in government hospitals to reduce the cost. This study aimed to evaluate the physical and chemical parameters, as well as the microbial stability, of selected semisolid extemporaneous preparations dispensed at the Skin Clinic National Hospital, in Kandy. The study was conducted as a laboratory-based experimental study. Samples of aqueous cream, and emulsifying ointment were collected from the skin clinic pharmacy at the National Hospital in Kandy. The physical and chemical parameters of the collected preparations were evaluated, including (organoleptic characterization, viscosity, pH and stability). Also, the microbial stability of the collected preparations was evaluated by assessing the total aerobic bacterial colony count and total yeast and mold colony count. Descriptive statistics and regression analysis are used in the analysis of results. It was found that the color of aqueous cream and emulsifying ointment was white and pale yellow respectively. All preparations exhibited a characteristic odor. During the observation period organoleptic characteristics of all preparations remained stable. The initial mean viscosity and standard deviation of the aqueous cream, and emulsifying ointment were  $5071.77 \pm 6.22$ , and  $5156.21 \pm 0.00$  respectively. The calculated slope constants for viscosity changes over time were -0.563 for aqueous cream, and -0.302 for emulsifying ointment. The initial mean spread ability and standard deviation were  $357.22 \pm 6.38$  for aqueous cream, and  $235.05 \pm 4.65$  for emulsifying ointment. The slope constants for spread ability changes over time were 7.611 for aqueous cream, and 1.797 for emulsifying ointment. The initial mean pH and standard deviation of the preparations, aqueous cream, and emulsifying ointment were  $7.46 \pm 0.07$ , and  $7.17 \pm 0.04$  respectively. When considering the linear regression of viscosity changes against time, the calculated slope constants for preparation of aqueous cream, and emulsifying ointment were -0.040, and -0.047 respectively. Microbial instability was observed in the aqueous cream which had unacceptable total aerobic bacterial colony count and total yeast, and mold count compared to United States Pharmacopeia (USP) acceptance criteria for non-sterile topical pharmaceuticals. However, Aqueous cream was not contaminated with *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Escherichia coli*. In conclusion, the emulsifying ointment showed high stability in viscosity. However, microbial instability was observed in the aqueous cream, although it was free from contamination by *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Escherichia coli*.

**Key words:** Evaluation, Extemporaneous, Ointment, Semisolid, Stability

## **Identifying Risk Factors in the Measles Outbreak Across Colombo District, Sri Lanka**

**Thilakasiri, L.A <sup>1,2\*</sup>, Perera, W.T.R.<sup>1</sup>**

*<sup>1</sup>Department of Applied Science, Faculty of Applied Science, Lincoln University College, Malaysia.*

*<sup>2</sup>Lady Ridgeway Hospital for Children, Colombo 8, Sri Lanka.*

*thilakasiri.ph@gmail.com, [thanusha@lincoln.edu.lk](mailto:thanusha@lincoln.edu.lk)*

Measles, a highly contagious viral disease, continues to be a significant cause of morbidity and mortality among children, especially in developing countries. After 2020, there has been a marked increase in measles cases in various parts of Sri Lanka. Despite the inclusion of the measles vaccine in Sri Lanka's Expanded Programme on Immunization (EPI) since 1984 and efforts to maintain high vaccination coverage, sporadic outbreaks persist, revealing gaps in immunization strategies. This study investigates the risk factors that contributed to the recent measles outbreak among children in the Colombo District of Sri Lanka. This study was carried out at the Isolation Ward and medical wards of Lady Ridgeway Hospital for children during the period from January 1, 2023, to June 31, 2024, involving 145 patients from Colombo district. Data were collected from medical and immunization records, supplemented by surveys of parents or guardians and interviews with public health experts and healthcare workers including doctors, nurses, Public health inspectors, Public health Midwives. Data were analyzed using SPSS to enable a comprehensive assessment of a range of factors, including demographic, socio-economic, environmental, epidemiological, and behavioral aspects contributing to the outbreak. The analysis revealed that, among children aged 1 month to 14 years, those aged 1 to 5 years are the most affected. Specifically, males represent 58% of the cases, while females account for 42%. Additionally, the affected population includes 73.1% Muslims, 24.1% Sinhalese, and 1.4% Tamil. Geographical analysis identified higher incidence rates in specific areas, such as Colombo-09 and Colombo-14, suggesting clusters of transmission. Additionally, behavioral factors, including attendance at crowded events and recent travel history, were found to further increase the risk of measles spread. Moreover, 80% had not received the MMR1 vaccine by 9 months, and 57.5% had not received it by 3 years due to poor education levels among parents and the COVID-19 pandemic. Among the patients, 97.5% had not received Vitamin A mega dose due to the lack of awareness about its importance. Interviews revealed key reasons for vaccine refusal, including perceived religious prohibitions, pseudoscientific beliefs and myths, beliefs in the safety of traditional complementary and alternative medicine (TCAM). Lockdowns, social distancing, and overwhelmed healthcare systems caused many people to postpone or miss their regular immunizations. Furthermore, delays in healthcare reporting, inadequate public health communication and lack of knowledge and awareness were identified as factors contributing to the persistence of the outbreak. In conclusion, this study identifies key risk factors influencing the outbreak, including low vaccination coverage and vaccine hesitancy influenced by cultural and pseudoscientific beliefs and impact of COVID-19 pandemic which led to missed or delayed routine vaccinations. Insufficient public health communication and outreach further exacerbates the situation. Addressing these issues through targeted education programs, improved public health education, and enhanced vaccine distribution is crucial for controlling the outbreak and preventing future occurrences.

**Keywords:** Colombo District, Covid-19, Measles Outbreak, Risk Factors, Sri Lanka, Vaccines

**Descriptive Cross-Sectional Study of Patients' Knowledge of Correct Use of Their Clinic Medicine, Issued by Outpatients Department at Teaching Hospital**

**Anuradhapura, Sri Lanka**

**Thilakarathna, A.P.<sup>\*1</sup>, Sihari, H.R.<sup>1</sup>, Wickramarathna, E.W.N.M.<sup>2</sup>, Ranasinghe, R.M.B.<sup>2</sup>,  
Ruksala, K.M.N.<sup>2</sup>**

*<sup>1</sup>Department of Pharmacy, Teaching Hospital, Anuradhapura, Sri Lanka*

*<sup>2</sup>Department of Pharmacy, Castle Street Hospital for  
Women's, Colombo, Sri Lanka*

*ajithpt77@gmail.com, imeshasihari@gmail.com*

Pharmacists in outpatient department pharmacy at Teaching Hospital Anuradhapura, issue a large number of medicines to clinic patients daily. For example, 200,000 metformin 500 mg tablets, 200,000 Losartan K 50 mg tablets, 200,000 Omeprazole 20 mg capsules and 200,000 Paracetamol 500 mg tablets were issued per week for a period of two months to these patients. Accordingly, 19 % of patients at clinics in Teaching Hospital Anuradhapura use at least one drug at the maximum dose according to their prescriptions. The main objective of this study was to gain a clear understanding of patients' knowledge regarding the correct use of medicines at Teaching Hospital Anuradhapura, by conducting a cross-sectional study using a random sampling method. Approval for the study was obtained from the Director of Teaching hospital Anuradhapura, with the consent of one of the consultant physicians. This is a descriptive cross-sectional study, which was conducted using random sampling technique. Intern pharmacists collected data from clinic patients by selecting every fifth patient from the queue during the first three hours of daily clinic operations on weekdays. The sample size obtained from the calculation was 377 and data were collected from 527 patients within a four-week period. In cardiology clinics, 83 % of patients did not receive formal information on the use of their medicine, and 64 % of patients did not adhere to the advice given by pharmacists regarding their medicine. In the endocrine clinic, 67 % of patients did not receive formal information on the use of their medicine, and 53 % of patients did not adhere to the advice given by pharmacists regarding their medicine. In Respiratory clinic, 74 % of patients did not receive proper information on the use of their medicine, and 65 % did not adhere to the services provided by pharmacists regarding their medicine. According to the data, 90 % of patients in Rheumatology clinics did not receive formal information on the use of their medicine, and 72 % did not adhere to the services provided by pharmacists regarding their medication. In the medical clinic, 86 % of patients did not receive formal information on the use of their medicine, and 78 % of patients did not adhere to the advice given by pharmacists regarding their medication. In Teaching Hospital Anuradhapura, a total of 80 % of clinic patients did not receive formal information on the use of their medicine, and 66 % did not adhere to the advice given by the pharmacists regarding their medication. Therefore, it is proposed to establish a patient counselling center in the outpatient pharmacy at Teaching hospital Anuradhapura to ensure proper patient education. Additionally, leaflets should be developed with counselling points specifically tailored for certain medications.

**Keywords** - Patients Knowledge, Correct Use of Medicine, Medicine

**Descriptive Cross-Sectional Study of Parents' Knowledge, Practice, and Compliance Regarding Dose & Various Dosage Forms of Paracetamol Attend to Outpatients'**

**Department in Lady Ridgeway Hospital, Colombo**

***Sihari, H.R.I.<sup>1</sup>, Thilakarathna, A.P.<sup>1</sup>, Wickramarathna, E.W.N.M.<sup>2</sup>, Laksiri, S.M.W.C.<sup>3</sup>***

***Sanjeewa, D.M.L.<sup>4</sup>***

*<sup>1</sup>Department of Pharmacy, Teaching Hospital, Anuradhapura, Sri Lanka*

*<sup>2</sup>Department of Pharmacy, The Zoysa Maternity Hospital, Colombo, Sri Lanka*

*<sup>3</sup>Regional medical supplies division, Colombo, Sri Lanka*

*<sup>4</sup>Sirimavo Bandaranayake Children's Hospital, Peradeniya, Sri Lanka*

*ajithpt77@gmail.com, imeshasihari@gmail.com*

Paracetamol is the most common antipyretic used to control fever in children. Since it is an over-the-counter medicine (OTC) and is available in many brands and dosage forms, the parents can access the medicines easily. Therefore, events of accidental poisoning occurred frequently with paracetamol, especially in children. According to recent research studies, the number of cases of accidental paracetamol poisoning increased remarkably over time and reported life-threatening health consequences. Through the study, the impacts of using paracetamol in children can be identified. The overdoses problems with paracetamol and how they related to lack of knowledge in parents are to be evaluated throughout the study. Improper guidance of parents, as well as improper self-medication, leads to "paracetamol poisoning" (Yeoh et al. 2021). This is a descriptive cross-sectional study, which was conducted using random sampling technique. Intern pharmacists collected data from clinic patients by selecting every third patient from the queue during the clinic hours of daily clinic operations on weekdays. The study was implemented at Lady Ridgeway Hospital, Colombo, involving 400 participants attending the outpatient department for their children's treatment, with the approval of the Director of the Lady Ridgeway Hospital, Colombo. According to the socioeconomic data, the researcher identified that the highest level of education among respondents was up to A/L, totaling 171 respondents, which constitutes 42.8 % of the total respondents. Further there were 109 graduate respondents, accounting for 27.3 % of the total participants. According to the evaluation of living areas, the researcher identified that the majority of respondents live in Colombo district, totaling 183 individuals, which represents 45.8% of the total study participants. The fewest respondents were from Kalutara district, with 39 individuals, comprising 9.8% of the total study. Additionally, 92 respondents were from Gampaha district, and 86 respondents were categorized under "Other" districts. Accordingly, 25.0 % of participants were unaware of paracetamol poisoning, while 29.8 % knew about paracetamol poisoning but were unfamiliar with its harmful effects. Additionally, 31.3 % of participants acknowledged that paracetamol poisoning can cause liver damage. As per the study 47.5 % of parents reported making their own decision to administer paracetamol when their child has a fever, while 43.3 % indicated that they give paracetamol to their children only when prescribed by a healthcare provider. And, 61.5 % of parents store paracetamol at home in a shelf or cupboard that is easily accessible to children. On the other hand, 76.3% of parents store paracetamol in a cool and dry place at home as recommended by pharmacists.

**Keywords:** Paracetamol Poisoning, Paracetamol Dosage

## **Correlation between Screen Time Exposure and Symptoms of Attention- Deficit Hyperactivity Disorder in a Diagnosed Paediatric Population**

**Kodithuwakku, K.A.H.S.<sup>1\*</sup>**

*<sup>1</sup>Department of Psychology, Faculty of Social Science, Arts and Humanities Lincoln University College, Malaysia.  
[hashko610@gmail.com](mailto:hashko610@gmail.com)*

Prolonged screen exposure has become an increasingly significant public health concern, particularly with its correlation to Attention-Deficit Hyperactivity Disorder (ADHD) in children. This growing relationship has garnered considerable attention due to its profound potential impact on child development and overall well-being. The primary objective of this research was to investigate the correlation between excessive screen time and ADHD symptoms among diagnosed pediatric patients at Teaching Hospital, Anuradhapura. The study further aims to elucidate the impact of socio-demographic factors on ADHD symptoms. The hypothesis posits that elevated screen time is correlated with increased ADHD symptoms in children diagnosed with the disorder. This study meticulously examined the statistical relationship between screen usage and ADHD symptoms in a convenient sample of 100 diagnosed children, aged 3-12 years, over a duration of three months. To ensure a comprehensive analysis, the Teacher and Parent Rating Scale, SNAP IV, was employed to measure the symptoms of ADHD in these children. A questionnaire regarding screen time was used after a pilot study. The data analysis utilized descriptive statistics to summarize screen time habits alongside attention and hyperactivity scores. Correlation analyses were conducted to explore the relationships between screen time and the attention and hyperactivity components of ADHD. The results indicated a moderate positive correlation between screen time and ADHD symptoms, with a Pearson correlation coefficient of 0.647, suggesting that higher screen exposure is associated with increased ADHD symptoms. Further analysis provided a deeper insight, revealing a similar moderate positive relationship between screen time exposure and the inattention subset of ADHD symptoms, with a correlation coefficient of 0.658. Additionally, the study identified a moderate positive correlation between screen time and the hyperactivity and impulsivity subset of ADHD symptoms, marked by a correlation coefficient of 0.545. These findings underscore the critical importance of addressing children's screen time as a pivotal factor in pediatric health. Reducing excessive screen exposure may significantly help alleviate symptoms associated with ADHD in children, emphasizing the urgent need for comprehensive strategies and interventions aimed at promoting healthy screen habits among pediatric populations. The World Health Organization recommends no screen time for children under two, 1-2 hours of quality media for ages 2 to 5 and consistent limits for older children to prevent negative effects from digital media use. The implications of this study, suggest that healthcare providers, educators, and parents should work collaboratively to establish guidelines and routines that limit screen time and encourage more interactive and engaging activities that do not involve screens. Furthermore, this research highlights the necessity for ongoing studies to explore the underlying mechanisms of this relationship more thoroughly. Understanding these mechanisms could lead to more targeted interventions and a better-informed approach to managing ADHD symptoms in children.

**Keywords:** ADHD Symptoms, Correlation Study, Pediatric Population, Screen Time, Teaching Hospital Anuradhapura.



## **Factors Influencing the Selection of Mental Health Practitioners in Colombo: A Focus on Therapist Attributes.**

**Lakshika, M.A.W.B.<sup>1\*</sup>**

*<sup>1</sup>Department of Psychology, Faculty of Social Science, Arts and Humanities, Lincoln University College, Malaysia.*

*[warunilakshika97@gmail.com](mailto:warunilakshika97@gmail.com)*

According to recent research studies, the prevalence of mental health conditions is increasing rapidly around the world. This may have majorly happened with the effects of increase of geriatric populations, continuously changing lifestyles, lack of social support, lack of exercise, increasing amount of substance abuse and misuse and many other reasons. When considering the Sri Lankan context, it is evident that there is a higher prevalence in mental health conditions within Sri Lanka, with a reportedly significant higher rates of suicides amongst the worlds. As per it is evident that there must be some serious issues with the service quality or the serious impairment in the awareness about importance of mental health and the different service specifications. This study is designed with the aim of identifying and analyzing the key factors considered by the patient population in Colombo urban area when selecting a therapist, psychologist or a counselor with a specific focus on therapist-related attributes. Mental health conditions and concerns themselves behold a higher degree of specificity and autonomy for everyone. Thereby, the factors considered by each individual when selecting a mental health practitioner are also predicted to consist of an immense diversity considering the service need and the context. Study was designed majorly considering four main co-areas of therapist factors; personal factors, educational and expertise factors, cultural and ethnicity factors and gender-based factors. This study is a quantitative meta-analysis research designed through cross-sectional study of structured interviews to evaluate the impact of therapist factors in selection of a psychologist, therapist or a counselor by general population specifically from Colombo urban area. The study population was selected using cluster sampling technique and consisted of 31 volunteer participants between the age groups of 20 – 50 years. Data collection was done through distributing a self-administered close ended google form among the participants with the consent form. Participants were selected representing sex groups; male, female and other. Patient populations were taken into accountability consisting of both the client and guardian categories. The sample consists of a variation of sociocultural and socioeconomic groups of people to maintain the variability. Pearson correlation analysis was adopted to find significant relationships between variables. Moreover, correlation analysis was done between significant factors to identify any strong relationships. The results of the study show a significant ambiguity in the consideration of given factors by the population during the selection process. This may have occurred due to the higher variance and autonomy of the mental health conditions and selection process. Nevertheless, through the statistical analysis of obtained data it can be concluded that all the considered key therapist factors have got more than half of its validation in the selection process.

**Keywords:** Therapist Factors, Selection Process, Mental Health, Psychologists, Patient Population



## **Describe the Food Pattern of the Moderate to Severe Acute Malnutrition Children Between 2 to 5 Years of Age**

***Halambarachchige, L.P.<sup>1,2\*</sup>, Perera, W.T.R.<sup>2</sup>***

*<sup>1</sup>Ministry of Health Office, Wattala, Sri Lanka*

*<sup>2</sup>Department of Applied Science, Faculty of Applied Science, Lincoln University College, Malaysia.*

*[lalithhalambarachchige561@gmail.com](mailto:lalithhalambarachchige561@gmail.com), [thanusha@lincoln.edu.lk](mailto:thanusha@lincoln.edu.lk)*

There is a significant nutritional deficiency reported among preschool children in Sri Lanka. Childhood undernutrition remains one of the most serious public health problems in many countries, especially low- and middle-income countries. Childhood nutrition is important because the foundation for lifetime health, strength and intellectual vitality is laid during this period. The objective of this study was to describe the food pattern of the acute moderate to severe malnutrition children between 2 – 5 years in Wattala, Ministry of Health (MOH) area in Gampaha District, Sri Lanka. A descriptive cross-sectional study was carried out in 2024 in randomly selected 262 children from the Growth Monitoring Registers of Public Health Midwives (PHMs) in MOH Wattala. Data were collected by a 24-hour dietary recall method. Children's mothers were subjected to an interview-administered questionnaire. Descriptive statistics and significance were calculated through SPSS software version 21. In this study 42.7 % (n=112) children were having tea with sugar before breakfast and 50.4% (n=132) were having milk powder with sugar before breakfast. Among them (n=262) 55.70% (n=146) of children had their breakfast mainly with high carbohydrate food including bread, buns and roti ect. However, 11.80% (n=31) of children had only fruit items as their morning snacks. It was recorded that 26.30% (n=69) of children had their lunch with no meat or fish items. For the evening snacks 71.80% (n=188) children had biscuits or other types of sweets. However, 21.40% (n=56) of children had received only fruits for evening snacks. Consumption of tea with sugar during the evening snack was 57.60% (n=151). It was recorded that 40.80% (n=107) of children had their dinner with no meat or fish item. This study showed high intake of high caloric but low nutritive type of food intake by the acute malnourished children. However, the high level of sweets for snacks by these children can have a possible impact on their food intake during their main meals too. Though there are several factors which affect nutritional status, food pattern and food habits can play an important role of these malnourished children. Nutritional programs and awareness programs to the parents will be productive to overcome the malnutrition of children 2-5 years age.

**Keywords:** Children, Food Pattern, Malnutrition, MOH Wattala

**Knowledge and Attitude Towards Covid-19 Vaccine Among the Staff of Professions Supplementary to Medicine (PSM) and Para Medical Category in National Hospital of Sri Lanka – Colombo**

**Misbahunnisa, M.Y.<sup>3\*</sup>, Bulumulla, D.M.C.M.<sup>1</sup>, Rajapaksha, Y.G.A.E.<sup>1</sup>, Achini, H.D.<sup>2</sup>,  
Helaweera, S.C.J.<sup>3</sup>**

<sup>1</sup>National Hospital of Sri Lanka, Colombo.

<sup>2</sup>Base Hospital, Pimbura, Kalutara, Sri Lanka.

<sup>3</sup>School of Pharmacy, National Hospital of Sri Lanka, Colombo.

[misbahunnisa2001@yahoo.com](mailto:misbahunnisa2001@yahoo.com), [chamarajayasanka635@yahoo.com](mailto:chamarajayasanka635@yahoo.com)

The COVID-19 pandemic has inflicted substantial socioeconomic challenges on Sri Lanka, affecting sectors like tourism, agriculture, and small businesses. Achieving widespread vaccination coverage has become an urgent necessity to mitigate the effects of the COVID-19 pandemic. The study aimed to assess the knowledge and attitudes toward COVID-19 vaccines among Professions Supplementary to Medicine (PSM) and Para Medical staff at the National Hospital of Sri Lanka (NHSL) in Colombo, from April 2022 to September 2023. Using a descriptive cross-sectional design, a total of 422 participants from various departments at the NHSL were surveyed using self-administered questionnaires. The questionnaires covered demographic details of the participants, as well as their knowledge, and attitudes toward COVID-19 vaccines, following the acquisition of consent. Data analysis utilized descriptive statistics and Likert scales with SPSS (version 26). Ethical clearance was obtained from the Research Management Committee of Lincoln University College and from the Ethical Review Committee of the NHSL, Colombo. Findings revealed that 43 % of participants belonged to the age group of 30-39 years. A total of 76.78% of participants received the AstraZeneca/Oxford vaccine, with 18.48% received the Sinopharm vaccine and 1.42% received the Pfizer-BioNTech vaccine. Importantly, 94.5% of participants correctly identified pregnant and lactating mothers as eligible for vaccination, indicating a high level of awareness. The study demonstrates a prominent level of knowledge (84.36%) and positive attitude (85.55%) toward COVID-19 vaccines among PSM and Para Medical staff. Importantly, all participants were aware of the system of the body affected by the virus. The study revealed that 94.5% of participants correctly identified pregnant and lactating mothers as eligible for COVID-19 vaccination, emphasizing high awareness. However, there were knowledge gaps regarding vaccine eligibility for children under one year (67.30%) and allergic individuals (74.88%). Notably, 85.78% of participants correctly believed that individuals with active COVID-19 infection are not eligible for vaccination. Concerns about vaccine safety and eligibility were evident, with 14.22% indicating uncertainty. Most participants (74.88%) believed the COVID-19 vaccine is safe, while 76.30% trusted its protective efficacy, and 85.07% believed in its potential to eradicate the disease. Additionally, 70.14% trusted the government's release of sufficient safety and efficacy data. Furthermore, 75.36% of participants believed in the necessity of continuing preventive measures post-vaccination, such as wearing masks and maintaining social distance. This study underscores the pivotal role of policymakers and health authorities in promoting vaccine acceptance within the community and among healthcare workers, crucial for mitigating the impact of the pandemic on public health.

**Keywords:** Covid19 Vaccine, Para-Medical Staff, Professions for Supplementary Medicine Staff

## **ABSTRACTS - SCIENCE AND TECHNOLOGY**

---

## **Availability of Basic Medical Instruments in Selected Hospitals in the Kegalle District**

***Perera, A.A.H.S.<sup>1\*</sup>, Ariyawansa, U.R.M.P.<sup>2</sup>, Daranagama, D.A.N.D.<sup>1</sup>***

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

*<sup>2</sup>Keppetipola District Hospital, Badulla, Sri Lanka*

*hasinipererapj55@gamil.com, [nayani@gwu.ac.lk](mailto:nayani@gwu.ac.lk)*

Medical instruments are essential tools healthcare professionals use to diagnose, treat, and monitor patients' conditions. WHO defines that a medical device can be any instrument, apparatus, implement, machine, appliance, implant, reagent for in vitro use, software, material, or other similar or related article, intended by the manufacturer to be used, alone or in combination for a medical purpose. The availability of medical equipment contributes significantly to effective and efficient service delivery. However, in developing countries, the availability and management of medical resources is one of the major issues in the health sector. Sri Lanka also has a problem with the availability of medical instruments throughout the country. There is a lack of equipment in some hospitals, a lack of funding for equipment, and difficulties in accessing hospitals. This paper aims to analyze medical instruments available in the Outpatient department, Emergency Treatment Unit, and Laboratory in nine (09) selected hospital systems in the Kegalle district in Sri Lanka. There are five categories of health facilities. PMCU (Primary Medical Clinical Unit), Divisional Hospital A, Divisional Hospital B, Divisional Hospital C, Base Hospital (Apex). The Nine hospital are PMCU – Yatiyantota, PMCU – Boralkanda, DHC – Amanawala, DHC – Amithirigala, DHC – Pindeniya, DHC – Higurakanda, DHC – Kiriporuwa, DHA – Kithulgala, BH – Karawanella. Data collection involved direct visits to each hospital, where the research team met with the relevant referring doctors and discussed the availability of medical instruments. Then proceeded to the OPD, ETU, and Laboratory, where conducted interviews with the relevant personnel and gathered information about the availability and condition of medical instruments. The collected data was systematically recorded and analyzed to identify the presence or absence of essential medical equipment in the departments of these hospitals. As a result, we found that some hospitals lack basic instruments, and some hospitals don't even have laboratory facilities due to insufficient funding and difficulties in accessing the hospitals. This low-resource environment affects the patients in the district and the quality of the service. These findings highlight the need for increased investment in medical equipment and improved logistical support to ensure that all hospitals, especially those in remote areas, are adequately equipped to provide quality healthcare services. Further, the importance of maintaining, repairing, and managing medical devices is also highlighted to continue the service. The results underscore the importance of addressing these disparities to enhance the overall effectiveness of healthcare delivery in the Kegalle district.

**Keywords:** Basic Medical Instruments, Hospitals, Kegalle District, Low Resource Environment

## **Revolutionizing Canteen Operations: The Impact of AI-Based Automated Systems on Efficiency and User Experience**

**Ahamath, N.S.<sup>1\*</sup>, Rafeek, F.A.<sup>1</sup>, Samaraweera, D.A.R.S.<sup>1</sup> Kumarasiri, R.A.S.S.<sup>1</sup>, Ranasinghe, N.K.<sup>1</sup>**

*<sup>1</sup>Department of Technology, Faculty of Indigenous Health Sciences and Technology, Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka.  
gwu-hict-2020-02@gwu.ac.lk, gwu-hict-2020-16@gwu.ac.lk*

Canteens and cafeterias play a crucial role as social and functional centers in educational institutions, workplaces, and metropolitan areas. However, conventional operations frequently encounter inefficiencies such as extended waiting periods, invoicing mistakes, and inadequate order handling. This article examines the potential of AI-based canteen automated systems (CAS) to transform these operations, improving effectiveness and user satisfaction while advancing sustainability. The study conducted a comprehensive literature review that specifically examined canteen automation systems, database security, and contemporary developments in food service management. The analysis was based on thirty papers from respected platforms such as ScienceDirect and IEEE Xplore. The abstract highlighted the potential of AI in improving canteen operations, demonstrating substantial reductions in food waste and operational expenses following the deployment of CAS. Machine learning algorithms are essential in AI-based CAS as they analyze historical data and patterns to predict consumer demand, as stated in the existing literature. By comprehending consumption patterns, these algorithms can propose customized menu options tailored to individual preferences or dietary needs. By ensuring that food amounts closely match projected demand and minimizing excess production and surplus food that would otherwise go to waste, this optimization of food production helps reduce waste. Natural Language Processing (NLP) enhances consumer interactions by utilizing automated responses and comment analysis. NLP algorithms could analyze and react to client queries or feedback immediately, hence enhancing the efficiency of communication between customers and canteen staff. This feature not only speeds up service but also ensures prompt and accurate handling of client inquiries, thereby enhancing overall service quality and customer satisfaction. This study included a survey that revealed a significant increase in consumer satisfaction. 80% of participants indicated their preference for CAS compared to manual systems, emphasizing that decreased waiting times and enhanced service accuracy were significant criteria. Furthermore, the results suggested that canteen automated systems CAS has the capacity to decrease food waste by as much as 68% by precisely matching output with real demand and therefore reducing environmental impact. To summarize, AI-based canteen automation solutions represent a revolutionary advancement in food service management. By leveraging AI's predictive, optimization, and consumer engagement capabilities, CAS improves operational efficiency and the user experience while also promoting sustainable behaviors that are critical for future dining settings. Ongoing research and development efforts guarantee the advancement of AI technology, which will play a crucial role in enhancing canteen experiences worldwide by making them more efficient, personalized, and environmentally friendly.

**Keywords:** Artificial Intelligence, Canteen Automated System, Food Service Management, Machine Learning, Natural Language Processing

## **Pre-Formulation Studies of Novel Oxidized Water Lily and Lotus Seed Starches: Potential Sources of Pharmaceutical Raw Material**

***Kankanamge, S.U.<sup>1\*</sup>, Jayasuriya, W.J.A.B.N.<sup>2</sup>, Herath, H.M.D.R.<sup>2</sup>, Pathirana, R.N.<sup>1</sup>***

*<sup>1</sup>Department of Pharmacy, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka.*

*<sup>2</sup>Department of Pharmacy and Pharmaceutical Sciences, Faculty of Allied Health Sciences, University of Sri Jayewardenepura, Sri Lanka.*

*[upekshisk@kdu.ac.lk](mailto:upekshisk@kdu.ac.lk)*

Hunting for lesser-known and underutilized crops could be an excellent source of excipients for the pharmaceutical sector. Lotus (*Nelumbo nucifera*) and water lily (*Nymphaea pubescens*) seeds contain over ~60% (dry basis) of starch content, and these plants are easily grown in Sri Lanka. Therefore, this study aimed to characterize the physicochemical profiles of oxidized starches extracted from lotus and water lily seeds compared to their native form and commercially utilized maize starch BP. Lotus and water lily seeds were collected from vendors in the Suriyawewa area of Sri Lanka. The study was done using the facilities available in several laboratories in Colombo. De-husked dried lotus and water lily seeds were powdered. Starch was extracted by dissolving each powdered seed with distilled water in 1:2 ratios. The slurry was kept for 3 hours, blended, and filtered. The filtrate was kept for 48 hours, and the sediment was filtered and dried at 40 °C. Starch modification techniques had to be limited considering the available facilities. Extracted lotus and water lily starches were modified by oxidation using 1% sodium hypochlorite (1 g active chlorine/100 g of starch). The physicochemical parameters such as pH, granule size, bulk, tapped and true densities, Hausner's ratio, Carr's index, angle of repose, hydration capacity, moisture sorption capacity, clarity, and viscosity of both modified starches, native starches, and maize starch BP were evaluated. Further, their IR spectra, X-ray diffraction (XRD) patterns, and scanning electron microscopic (SEM) images were analyzed. The data were compared by performing an independent t-test. Oxidized lotus and water lily starch formed new bands in the IR spectrum around 2920, 1740, and 1645 cm<sup>-1</sup> representing the formation of the carbonyl group and absorption of -COONa which were not detected before oxidation. Native lotus and water lily starches and maize starches had similar XRD A-type patterns, giving peaks at 150, 170, 180, and 230 (2 $\theta$ ). XRD patterns of both lotus and water lily starches remained unchanged after oxidation. The starch granules of water lily and maize starch BP were observed to be polygonal in shape, while lotus starch had oval-shaped granules. No morphological changes were observed in the granules of lotus and water lily starches in SEM images after oxidation. Parameters such as densities, hydration capacity, moisture sorption capacity, and clarity were increased after oxidation compared to their native form and maize starch BP, while the angle of repose was decreased after oxidation. All the physicochemical parameters except Hausner's ratio and Carr's index of both oxidized lotus and water lily starch reported significant differences with improved physicochemical properties such as flowability, compressibility, and swelling ability compared to maize starch BP (p<0.05). These pre-formulation study findings of modified lotus and water lily starches need to be further assessed as pharmaceutical excipients in formulating dosage forms such as tablets and capsules along with suitable active ingredients.

**Keywords:** Excipients, Maize, Lotus, Oxidation, Seed Starch, Water Lily

## **Artificial Intelligence in Climate-Smart Agriculture: A Review of Recent Progress and Future Perspectives**

**De Silva, A.H.A.T.E.<sup>1\*</sup>**

*<sup>1</sup>Department of Agricultural Chemistry, Faculty of Agriculture, University of Jaffna, Sri Lanka  
[anjalee97tharindi@gmail.com](mailto:anjalee97tharindi@gmail.com)*

Considering the emerging realities of climate change, climate-smart agriculture (CSA) is an integrated approach that aims to modify and reorient agricultural systems to ensure food security. Given the urgent need for innovative strategies to enhance productivity, resilience, and sustainability in agriculture, artificial intelligence (AI) presents a transformative opportunity. The present study was performed as a non-systematic review by searching for articles published from 2020 to 2023 using Google Scholar to explore the possible advantages of the most recent developments in AI technology and their applications in CSA, as well as highlight future directions for research and implementation. The search was guided by the keyword combination "artificial intelligence and climate-smart agriculture." Weather fluctuation, water scarcity, and the emergence of new pests and diseases are just a few of the major issues that climate change presents to agriculture. AI has advanced recently, and subsets called machine learning algorithms and deep learning have proven very useful in evaluating large datasets to forecast crop yields, optimize irrigation schedules, insect infestations, and weather trends forecast. With the use of this data, farming operations and resource allocation strategies may be proactively changed to boost productivity and reduce environmental effects. AI is also essential to precision agriculture, which uses sensors, autonomous drones, and satellite imagery to track crop health, soil conditions, and water use in real time. AI systems can provide useful crop management guidance, like optimal planting schedules, rates of fertilizer application, and pest control techniques. AI integration in CSA has the potential to improve agricultural operations over the long run. AI could improve agricultural supply systems' resilience. AI can assist farmers and distributors in streamlining their processes, reducing waste, and increasing the effectiveness of food distribution by forecasting supply and demand trends. Systems for supply chain management powered by AI can help improve traceability, guaranteeing the quality and safety of food from farm to table. The incorporation of AI in CSA is confronted with various intricate challenges, even with encouraging progress. These include the requirement for data of the highest caliber, data privacy, the intricacy of agricultural systems, and the dearth of infrastructure and technical proficiency in many areas. In conclusion, AI holds great promise for enhancing CSA by improving crop management, resource use, and supply chain efficiency, which are crucial for addressing climate-related challenges. However, successful integration of AI into CSA requires overcoming hurdles like data quality, privacy concerns, and infrastructure gaps. In the future, research should focus on developing more reliable AI models that can handle the complexity and variability of agricultural systems. It is also recommended to invest in infrastructure and capacity-building initiatives to ensure that AI technologies can be effectively implemented in diverse agricultural settings. Addressing these issues will enable AI to play a transformative role in CSA, promoting sustainable food production, environmental stewardship, and improved livelihoods for farmers.

**Keywords:** Artificial Intelligence, Climate Smart Agriculture, Deep Learning, Machine Learning Algorithms, Precision Agriculture, Sustainability.

## **The Environmental Jurisprudence Approach to Reduce Carbon Emissions: Legal Responses to Climate Change**

**Spencer Vitharana, S.P.H.<sup>1\*</sup>, Somasundaram, D.<sup>2</sup>**

<sup>1</sup>*Department of Law, Faculty of Law, Girne American University, UK*

<sup>2</sup>*School of Law, University of London, UK*

*[s.vith@aol.com](mailto:s.vith@aol.com), [dilrukshi@idmedu.lk](mailto:dilrukshi@idmedu.lk)*

Over the past five decades, international communities have consistently voiced concerns about environmental degradation such as carbon emissions caused by human activities. Still, bold actions to mitigate these risks have been deficient. This reluctance may stem from a lack of comprehensive understanding of the term "environment" and its diverse elements. These biological elements are intrinsically allied, balanced, and interdependent for their existence. This intricate network involves multiple factors such as environmental, economic, social, and political dimensions that are tightly interwoven and complex. These interdependencies are inadequately addressed, resulting in unsustainable levels of natural resource extraction. To find out the imbalance, the objective of the research is to examine the effectiveness of international treaties in reducing air pollution, specifically carbon dioxide emissions from the burning of coal, oil and gas due to human activities. This field is multidisciplinary and encompasses various research approaches and methodologies. To build environmental regulations to reduce emissions, a new method of interpreting the law is required due to the rapid increase of emissions around the world. Considering a legal decision regarding environmental issues, we need to extend our study from the relationship between law and society to the natural environment, with the participation of lawmakers, attorneys, scholars, and courts actively engaged in guiding jurisprudence. Jurisprudence is the philosophy or theory of law that involves creating bodies of law, methods for interpreting the law, and studying the relationship between law and society. Environmental Jurisprudence is the legal recognition of individual and state agency responsibilities that extend to the natural world within a human-centered context. The Earth jurisprudence can be interpreted as a legal science accommodating the principles of science and the recognition of the intrinsic rights of the earth and all its components. This research explores the relationship between emissions reductions and the number of environmental cases considered in various jurisdictions in the United States and the European Union. It also investigates how environmental jurisprudence advances environmental law towards a greater earth jurisprudence—a natural holistic legal philosophy and legal framework. To analyze the effectiveness of this relationship, secondary data has been obtained from Columbia Law School, United Nations Environmental Programme Reports, and oil and gas companies in the United States and the European Union from 2015 to 2022. SPSS and Excel spreadsheets are used to get graphic and numeric outputs for a time-series descriptive analysis method. The research reveals a considerable decline in carbon dioxide emissions with the increase in jurisdictions upholding environmental litigation cases.

**Keywords:** Climate Change, Environmental Jurisprudence, Environmental Law, Earth Jurisprudence, Carbon Dioxide Emissions



## **Advancements in Digital Technologies for Blood Donation Systems: A Comprehensive Review and Prospective Developments**

**Gunasekara, W.D.E.H.<sup>1\*</sup>, Madhushani, M.A.M.<sup>1</sup>, Makawita, M.G.T.A.<sup>1</sup>, Ranasinghe, N.K.<sup>1</sup>**

*<sup>1</sup>Department of Technology, Faculty of Indigenous Health Sciences and Technology, Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka  
[gwu-hict-2020-53@gwu.ac.lk](mailto:gwu-hict-2020-53@gwu.ac.lk)*

Blood donation involves transferring blood from donors to recipients. In order to make this procedure more efficient and encourage the formation of donor communities, worldwide efforts are increasingly making use of social media, online blood donation systems, and smartphone applications. Despite these progressions, numerous countries encounter deficiencies and mishandling of blood, resulting in notable difficulties such as recurrent shortages, isolated blood bank operations, insufficient blood type availability, and ineffective management systems. This review was conducted using approximately 30 research publications sourced from reputable databases such as IEEE, Google Scholar, PubMed, and Scopus. Additionally, existing web applications for blood donation were also examined. Mobile applications and internet platforms have transformed the practice of blood donation by making it easier for donors and improving the connection between donors and blood banks, according to the most recent literature. These programs enable users to sign up, arrange donations, and receive alerts regarding donation campaigns and critical blood needs. In addition, cloud computing has facilitated the consolidation of blood bank databases, hospital systems, and donor information into a cohesive platform. This connection facilitated the immediate exchange of data, enhancing the collaboration between various entities engaged in blood donation. Cloud-based systems provide scalability, enabling efficient management of massive amounts of data. Artificial intelligence (AI) and machine learning (ML) technologies have played a crucial role in improving the efficiency of blood donation systems. According to the literature, new technological advances, AI, ML, and the use of cloud computing led to a significant reduction in blood loss by 10% and an 87% reduction in the risk of blood loss compared to traditional prediction methods based on clinical data. AI systems can forecast the need for blood, determine appropriate donors, and efficiently match blood types. Machine learning improves inventory management by analyzing donation trends and forecasting shortages. Despite the progress, the task of incorporating different digital systems continues to be difficult. Facilitating smooth communication across many platforms and databases is essential for optimizing the effectiveness of blood donation systems. Future advancements should prioritize the improvement of user privacy by implementing sophisticated encryption methods and reliable data storage systems. Safeguarding donor information from unauthorized access is of utmost importance. By incorporating blockchain technology, the system may ensure the integrity and immutability of blood donation records, thereby enhancing trust and traceability. Mobile applications, AI, and cloud computing are effectively tackling significant obstacles and enhancing the entire procedure. Through the utilization of these advancements and tackling existing obstacles, the future of blood donation systems exhibits significant potential for enhancing healthcare outcomes and preserving a greater number of lives.

**Keywords:** Artificial Intelligence, Blood Donation System, Cloud Computing, Machine Learning.

## **Smart Agriculture: The Role of Artificial Intelligence in Revolutionizing Irrigation Techniques**

***Samarasinghe, S.A.S.V.<sup>1\*</sup>, Ranasinghe, R.A.T.<sup>1</sup>, Navaratne, W.M.C.S.S.<sup>1</sup>, Ranasinghe, N.K.<sup>1</sup>***

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

*GWU-HICT-2020-30@gwu.ac.lk*

Irrigation technology is an essential part of agriculture, evolving from basic methods employed by ancient Egyptian, Mesopotamian, and Indus Valley civilizations to advanced artificial intelligence (AI)-powered systems in modern times. AI, or artificial intelligence, is the process of replicating human intellect in computers that are programmed to think and learn in a similar way to humans. On the other hand, the Internet of Things (IoT) links ordinary things to the Internet, allowing them to exchange data. The purpose of this analysis is to investigate the progression of irrigation technology, starting from ancient methods and extending to modern AI-powered systems. This review was completed utilizing a methodical procedure. A comprehensive literature study was performed using databases such as Google Scholar, IEEE Xplore, and ScienceDirect. The review specifically targeted peer-reviewed articles, conference papers, and industry reports published from 2015 to 2023. The specified keywords are "irrigation technology," "AI in agriculture," "precision irrigation," and "IoT in farming." Data extraction was conducted on several aspects including irrigation system kinds, technological advancements, applications of artificial intelligence (AI) and Internet of Things (IoT), and efficiency improvements. Based on existing research, the Internet of Things (IoT) technology is employed to continuously monitor soil moisture levels, crop health, and irrigation system efficiency, generating substantial volumes of real-time data. Scientists have used large amounts of data to tackle limitations in agriculture by combining Internet of Things (IoT) sensors with computer optimization techniques. This has resulted in improved productivity, accuracy, and the ability to manage resources flexibly. The ongoing study focuses on the development of prediction algorithms that can precisely forecast rainfall and weather variations. The objective is to enable efficient irrigation of crops by utilizing resources optimally and reducing the need for physical labor. In addition, researchers seek to improve productivity through the implementation of automation utilizing sensors, robotics, and drones. Furthermore, AI has been successfully employed in agriculture by implementing intelligent irrigation systems. These devices automatically water fields by monitoring soil moisture levels and climatic factors, thus saving water. Despite these progressions, the application of AI in irrigation faces several challenges, including high implementation expenses, limited access to fast internet in rural areas, concerns regarding data privacy and security, and the need for compatibility between diverse systems. Moreover, the lack of standardized procedures for data collection and analysis can hinder the effective use of AI-driven irrigation systems. Future research in smart agriculture includes the creation of advanced artificial intelligence models to replicate agricultural ecosystems, enhancing energy-efficient Internet of Things (IoT) devices, extending 5G connectivity to rural areas, and exploring the application of cloud computing for big data analysis. These advancements illustrate the profound influence of AI on agriculture and emphasize the importance of ongoing research and education in this field.

**Keywords:** Artificial Intelligence, Internet of Things, Irrigation Technology, Smart Agriculture.

**Recent Advancements in Performance Improvement Methods of Microbial Fuel Cells**  
***Hasna, M.S.P.<sup>1</sup>, Maha, M.F.<sup>1</sup>, Safana, K.R.<sup>1</sup>, Utharshana, S.<sup>1</sup>, Kirusayini, P.<sup>1</sup>, Daranagama, D.A.N.D.<sup>1</sup>***

*<sup>1</sup>Department of Technology, Faculty of Indigenous Health Sciences & Technology, Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka.  
[fathimahasna084@gmail.com](mailto:fathimahasna084@gmail.com)*

Microbial Fuel Cells (MFCs) have emerged as a promising technology capable of converting organic matter into electrical energy through microbial metabolism, offering dual benefits of sustainable energy generation and wastewater treatment. Despite the significant potential, the widespread application of MFCs has been hampered by their relatively low power output and efficiency. This systematic review synthesizes the latest advancements in performance enhancement methods for MFCs, drawing on an analysis of 15 carefully selected studies published between 2018 and 2022. The review focuses on three key areas: microbial electrogenicity, electrode materials, and reactor design, each contributing to the overall improvement in MFC performance. Genetic engineering has been employed to develop microbial strains with superior electron transfer capabilities. For example, engineered strains of *Geobacter* and *Shewanella* have demonstrated enhanced electron transfer efficiencies, leading to significant improvements in power output. Advances in synthetic biology have further optimized the metabolic pathways in these microorganisms, allowing for more efficient energy conversion and higher power densities. Electrode material innovation is another critical area where substantial advancements have been made. The use of nanomaterials, conductive polymers, and composite materials has significantly improved the conductivity and surface area of electrodes, which are vital for efficient electron transfer and microbial adhesion. Materials such as graphene and carbon nanotubes have proven particularly effective, enhancing both the electron transfer rates and the microbial adhesion properties. Additionally, the development of three-dimensional structured electrodes has provided a larger surface area for microbial colonization, resulting in higher power densities and overall improved MFC efficiency. Reactor design has also played a pivotal role in advancing MFC technology. Innovations such as multi-electrode systems, stacked MFC configurations, and optimized flow dynamics have been implemented to enhance substrate utilization and power output. The introduction of multi-chamber reactor designs has improved the separation between anode and cathode compartments, reducing internal resistance and thereby increasing overall efficiency. These design improvements have made MFCs more scalable and practical for larger applications, moving the technology closer to commercial viability. The integration of MFCs with other wastewater treatment processes has broadened their application potential. Hybrid systems that combine MFCs with anaerobic digestion or bioremediation processes have shown enhanced performance in both energy recovery and contaminant removal. These integrated approaches maximize the benefits of MFC technology, making it a more viable solution for industrial and municipal wastewater treatment. The continued development of MFCs, particularly through advancements in microbial electrogenicity, electrode materials, and reactor design, holds great promise for sustainable energy production and environmental remediation.

**Keywords:** Microbial Fuel Cells, Electrogenicity, Electrode Materials, Reactor Design, Wastewater Treatment.

## **Innovative Applications of Lotus Fibers in the Sri Lankan Fabric Industry: A Sustainable Approach**

**Rathnayaka, R.M.T.D.K.<sup>1\*</sup>**

*<sup>1</sup>Postgraduate Institute of Humanities and Social Sciences, University of Peradeniya, Sri Lanka  
[thamali.dk.rathnayaka@gmail.com](mailto:thamali.dk.rathnayaka@gmail.com)*

The contemporary textile industry increasingly adopts "eco-friendly" and "sustainability-conscious" practices due to environmental degradation and consumer safety concerns, leading to a higher demand for natural fibers over synthetic ones. Natural fibers, from both plant and animal sources, are valued for their flexibility, fineness, and high length-to-thickness ratio and are widely used in technical textiles and garments. The negative environmental impacts of synthetic fibers have spurred the development of sustainable methods for cultivating and using natural fibers. In Sri Lanka, recent experiments have focused on banana fibers. Expanding this exploration, this study investigates the potential of lotus fibers, a material traditionally unused in Sri Lanka. Historically, lotus fabric was used by Burmese Buddhist monks in the 5th century to make robes, a time-consuming and skill-intensive process that made the fabric rare and expensive. Today, lotus fabric, reflecting traditional craftsmanship and cultural heritage, is produced by artisans in Cambodia, Myanmar, and Vietnam. This research focuses on creating lotus fiber fabric in Sri Lanka, examining the unique characteristics of local lotus plants, which vary in size, features, and species compared to those in other countries. Lotus fibers were extracted from lotus stalks through an eco-friendly process without chemical additives, spun into threads, and woven into textiles using traditional manual techniques. This sustainable approach utilizes discarded lotus stalks and produces biodegradable waste, making lotus fiber production environmentally friendly. The resulting fabric was rigorously tested for properties such as moisture absorption, adaptability, and durability, showing similarities to cotton and linen textiles. The results revealed that lotus fiber is a novel, soft, and slender natural cellulose fiber with excellent moisture absorption, adaptability, and durability, making it ideal for comfortable attire. Recognizing this potential, the study suggests that Sri Lanka could harness lotus fiber in fabric manufacturing, promoting economic growth and contributing to global sustainability efforts. Additionally, lotus fiber textiles offer medicinal benefits, addressing climate-related health issues among tourists. These textiles maintain their quality even after washing and sun exposure, generating high demand due to their unique properties and therapeutic effects. This research not only focuses on creating lotus fiber fabric but also on its practical application in garment production. Garments made from lotus fiber fabric were created and tested, demonstrating the material's suitability for the fashion industry due to its comfort and durability. Furthermore, the study explores the Ayurvedic and medicinal significance of lotus, adding value to its application. With guidance from indigenous medical universities in Sri Lanka, experiments were conducted to preserve and promote the medicinal value of the fabric. In conclusion, this research positions lotus fiber as a valuable addition to Sri Lanka's fabric industry, fostering innovation and sustainability. It emphasizes the importance of exploring and utilizing lotus fibers as a sustainable and innovative solution for the contemporary textile industry, highlighting their potential to drive economic growth and environmental stewardship in Sri Lanka.

**Keywords:** Lotus, Natural Fibers, Textile Material, Sustainable Fashion

## **Optimizing Workload Allocation in Edge-Based Wireless Body Area Networks Using a Particle Swarm Optimization Algorithm on Raspberry Pi4**

***Alahakoon, S.<sup>1,2\*</sup>, Alobaedy, M.M.<sup>2</sup>***

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

*<sup>2</sup>Faculty of Information Technology, City University, Petaling Jaya, Malaysia.  
[sachi@gwu.ac.lk](mailto:sachi@gwu.ac.lk), [mustafa.theab@city.edu.my](mailto:mustafa.theab@city.edu.my)*

A wireless body area network (WBAN) is a network that interconnects sensor nodes, enabling communication between individuals and objects. The utilization of a singular WBAN enables the monitoring variety of biomedical sensors that track a patient's vital signs. Prior to making critical medical decisions, collected raw data should be processed and analyzed. Edge processors are capable of efficiently processing data for edge-based WBANs. By optimising workload allocation in WBANs, vital sign monitoring becomes reliable and efficient, enabling timely medical interventions. This research proposes a conceptual framework and algorithm to optimize workload allocation in edge-based WBAN systems. The effectiveness of the proposed approach was tested and evaluated through experimentation. The proposed conceptual framework consists of three phases: simulating different WBAN configurations using a suitable network simulation tool, developing optimal workload allocation algorithms and conducting experiments using optimization technique to evaluate performance. Following a comprehensive review of the relevant literature, Particle Swarm Optimization (PSO) method was selected to optimize workload allocation in WBAN for this research. Experiments will be conducted as the third Phase of the conceptual framework to determine the most effective workload allocation method for WBAN, which is not dependent on the processing element. This research uses Raspberry Pi 4 as an edge processor in WBAN. This conceptual framework and algorithm will optimize workload allocation in edge processors by considering the network quality. Therefore, with the developed conceptual framework, it would be possible to update data sending frequency according to the communication strength and scanning sensors maximum time and collect data. Experimental results demonstrate that the PSO algorithm improves system quality in contrast to without any optimization technique by reducing unsuccessful data transmission and power consumption. In both scenarios, the number of transmission failures increases as line quality decreases. However, the PSO algorithm significantly enhances system performance by reducing transmission failures by approximately 50% and decreasing power consumption by 60%. These improvements are critical for the sustainable operation of WBANs in healthcare settings. Future work will explore the application of different optimization techniques and alternative edge processors, potentially extending the framework to more complex and diverse WBAN scenarios. These findings pave the way for more resilient and energy-efficient WBAN systems, with significant potential to improve patient care and operational efficiency in healthcare applications.

**Keywords:** Edge Computing, Energy Efficiency, Health Monitoring, Optimization Techniques, Raspberry Pi 4, Wireless Body Area Networks.

## **Evaluating Time Complexity of Optimization Techniques Used in Edge-Based Wireless Body Area Networks for Healthcare Applications**

***Alahakoon, S.<sup>1,2\*</sup>, Alobaedy, M.M.<sup>2</sup>***

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

*<sup>2</sup>Faculty of Information Technology, City University, Petaling Jaya, Malaysia.  
[sachi@gwu.ac.lk](mailto:sachi@gwu.ac.lk), [mustafa.theab@city.edu.my](mailto:mustafa.theab@city.edu.my)*

Over recent years, there has been a noticeable emergence of edge computing-driven Wireless Body Area Networks (WBANs) as a prominent trend within the healthcare sector. WBANs are increasingly utilized in healthcare for continuous monitoring of patient vital signs, enabling timely medical interventions through real-time data processing. With the help of optimization techniques, this application can achieve the desired performance and increase the quality of service. Considering the nature of the application, the most significant factors are speed, reliability, and latency. Therefore, the algorithm's time complexity assumes a most important factor and must be thoroughly evaluated before implementing optimization techniques within healthcare applications. Most of the current literature primarily discusses resource optimization techniques, with limited attention directed toward their applicability to edge computing-based WBANs. This study conducts a systematic review and comparative analysis of the time complexities associated with ten optimization techniques commonly employed in edge-based WBANs. Those are Lyapunov, Convex, Game theory, Genetic Algorithm (GA), Particle Swarm Optimization (PSO), Tabu Search, Grey Wolf Optimization (GWO), Ant Colony Optimization (ACO), Cuckoo Search, and Firefly algorithm. The findings of this paper contribute to bridging the gap by comparatively analyzing the time complexity of optimization techniques, which enables informed algorithm selection for specific applications. This review discusses various strategies for optimizing edge-based WBAN systems and compares the time complexities of those optimization techniques. The reviewed papers focused on minimizing latency, energy consumption, task failures, and communication loads in WBANs. The comparative analysis found that algorithms such as GA, PSO, GWO, and Cuckoo search, which claimed linear time complexity, are more suitable for minimizing energy and cost in WBANs. In contrast, techniques like Lyapunov, Tabu search, ACO, and Firefly have quadratic time complexity, while convex optimization and Game theory have polynomial complexity, less efficient for real time applications. As extended research, an experimental analysis of time complexity can be conducted based on this review. Space complexity, alongside time complexity, is a crucial factor in selecting an appropriate algorithm for an application. Similarly, a comparative analysis of the space complexity of algorithms can be conducted to identify the appropriate algorithm for a given application. In many instances, understanding the time complexity of these algorithms is crucial, as selecting the appropriate optimization technique can lead to cost savings for developers and facilitate the adoption of innovative technologies. Hence, the findings of this study offer valuable insight that enable healthcare researchers and developers to make informed decisions when selecting optimization techniques, ensuring that the chosen algorithms meet the specific time and resource constraints of WBAN applications.

**Keywords:** Edge Computing, Optimization Techniques, Time Complexity, Wireless Body Area Networks

## **Impact of Various Liquid Fertilizers on Growth and Yield Performance of Cauliflower**

**Pathirana, P.D.A.<sup>1\*</sup>, Anusiya, M<sup>1</sup>, Jeyavanan, K.<sup>2</sup>**

<sup>1</sup>*Department of Biosystems Technology, Faculty of Technology, University of Jaffna, Sri Lanka.*

<sup>2</sup>*Department of Agronomy, Faculty of Agriculture, University of Jaffna, Sri Lanka.  
dilkiamandapathirana@gmail.com, [anusiya@univ.jfn.ac.lk](mailto:anusiya@univ.jfn.ac.lk)*

The growing use of liquid fertilizers among Sri Lankan farmers reflects a broader trend toward sustainable agricultural practices, aimed at reducing reliance on chemical inputs while improving crop productivity. In this context, a controlled pot experiment was conducted from December 2020 to March 2021 at the Agriculture Farm, Faculty of Agriculture, University of Jaffna, to evaluate the effects of various liquid fertilizers on the growth and yield performance of cauliflower (*Brassica oleracea* var. botrytis) cultivated in insect-proof net houses. The experiment followed a Complete Randomized Block Design (CRD) with ten replicates, including four treatments: T1 (control with distilled water), T2 (chemical growth promoter—Nitrobenzene), T3 (azolla), and T4 (fermented cow urine). Fermented cow urine was prepared by allowing fermentation in an airtight container for seven days, followed by dilution to a 20 % concentration. Azolla, a nitrogen-fixing aquatic fern, was sun-dried for seven days, finely powdered, and similarly diluted. Foliar application of these treatments was initiated two weeks after seeding and conducted weekly thereafter. The growth and yield parameters were analyzed using SAS software at a significant level of  $p < 0.05$ . The results revealed that the T4 treatment (fermented cow urine) significantly enhanced plant growth, with improvements in plant height, leaf area, and number of leaves per plant. Yield attributes, including total yield, head diameter, and girth, also showed notable improvements in the T4 group. Furthermore, cow urine acted as a natural pesticide, contributing to healthier and more robust plant growth. The study concludes that cow urine is an effective, affordable, and eco-friendly liquid fertilizer that small-scale farmers can use to boost cauliflower yields and promote sustainable agriculture.

**Key words:** Cauliflower, Cow Urine, Head, Liquid Fertilizers



**A Systematic Review of the Pesticidal Properties of Water Hyacinth Extract**  
**Abeykoon, M.G.U.U.<sup>1</sup>, Kumara, H.M.S.P.<sup>1</sup>, Kuma, W.G.A.M.<sup>1</sup>, Rathnayake, L.L.U.<sup>1</sup>,  
Rathnayaka, R.M.H.K.<sup>1</sup>, Daranagama, D.A.N.D.<sup>1</sup>**

<sup>1</sup> Department of Technology, Faculty of Indigenous Health Sciences and Technology, Gampaha  
Wickramarachchi University of Indigenous Medicine, Sri Lanka.  
[abeykoonudari@gmail.com](mailto:abeykoonudari@gmail.com), [shanukapubudu999@gmail.com](mailto:shanukapubudu999@gmail.com)

Water hyacinth (*Eichhornia crassipes*) is widely recognized as a highly invasive aquatic weed, notorious for its rapid proliferation and disruptive impact on water bodies worldwide. Its aggressive growth poses significant challenges to aquatic ecosystems, prompting increased scientific interest in recent years. The studies have explored the efficacy of extracts from this plant against various species, revealing its potential as a natural agent in combating different environmental challenges. This study seeks to understand the pesticide effects of water hyacinth by analyzing data from 9 selected research papers, out of 23 relevant studies, published between 1989 and 2022. The research draws on sources from Google Scholar and PubMed to evaluate the effectiveness of the tested insects over this period. The keywords of “pesticide, insecticide, eco-friendly pest management” for searching. Scientists have focused on evaluating extracts from water hyacinth using different solvents and extracting chemical constituents. Systematic analysis of these extracts has been conducted to assess their impact on various insect life stages, such as larvae, pupae, and adults, to disrupt or inhibit their development and survival. According to the results, extracts of water hyacinth affected the developmental stage of household pests like cockroaches (*Periplaneta americana*), Chironomid (*Chironomus ramosus*), fire ants (*Solenopsis invicta*), pupae of common house mosquito (*Culex quinquefasciatus*), pulse beetles (*Callosobruchus maculatus*) and Cotton leafworm (*Spodoptera littoralis*). Pesticide activity depended on the concentration and solvent of extracts of water hyacinth. Methanol and ethanol extractions were effective for pests by showing the highest activities. Some studies showed that pesticide effects vary depending on the parts of the water hyacinth. For instance, root extracts of water hyacinth showed the effect of Chironomus (*Chironomus ramosus*) larvae. One of the studies utilized water hyacinth plant extract to kill household cockroaches (*Periplaneta americana*) employing ultraviolet and fourier transform-infrared spectroscopic analyses to confirm the high levels of methanol extract in the leaves—Mortality percentage was increased when higher concentration and identified weight of loss of pests. The finding also explained that the efficacy and the mode by which the extracts could induce toxicity depend on the growth stage of the pests. To understand the mechanism of the pesticide effect, catalase, glutathione S-transferase, acetylcholinesterase, and carboxylesterase were measured. This review explores recent studies to provide a comprehensive understanding of the pesticidal effects of water hyacinth. It also suggests future research directions for mitigating the plant's adverse effects while harnessing its beneficial properties.

**Keywords:** Agricultural Pests, *Eichhornia Crassipes*, Eco-Friendly Pest Management, Pesticidal Properties, Water Hyacinth



**The Effects of Yoga on the Mental Health and the Rehabilitation of Sri Lankan Prisoners**  
**Hettiarachchi, R.K.G.A.R.P.<sup>1\*</sup>, Premadasa, K.M.D.N.<sup>1</sup>**

<sup>1</sup> *Department of Indigenous Health Sciences, Faculty of Indigenous Health Sciences and Technology, Gampaha Wickramarachchi University of Indigenous Medicine.*  
*arangana93@gmail.com, dulshipremadasa@gmail.com*

Prisoners are a group of people who suffer from physical and mental suffering and suffer from many mental disorders such as stressful situations and anxiety situations. Despite the practice of yoga around the world, unfortunately, opportunities for prison inmates to reap the benefits of yoga practice are rare. According to the latest National Prison Administration records released in July 2024, there were about 30106 prisoners in Sri Lanka. Rates of mental illness indicate that prisoners suffer daily stress. The reasons given for this are various problems in the prison cells, prison staff problems, lack of minimum facilities for the prisoners, inhumane treatment of the prisoners, etc. Accordingly, these factors mainly affect the mental and physical problems of prisoners. Prisoners have many health problems, but most suffer from depression, anxiety, sleep problems, anti-social behavior, extreme fatigue etc. the physical problems are weight gain, decreased fitness, increased cardiovascular risks, and increased risks for mental illnesses, like depression and anxiety. Older prisoners typically suffer from chronic physical health problems such as heart disease, diabetes, hypertension, and sensory impairments. There is a lot of evidence that yoga practice and yoga meditation are immensely beneficial for the overall mental and physical health of those who stay in prisons. Although several articles on prison projects in many countries of the world have been reviewed, there are no reviews of the effects of yoga practice and meditation on the mental and physical health of prisoners. Hopefully, this research paper will contribute to explaining how yoga practice and yoga meditation can specifically affect incarcerated prison inmates. This article explores how yoga therapy can help prison inmates to deal positively with their lives and help them change constructively. The main purpose of this article is to study whether there is a positive effect of yoga exercises and yoga meditation on Sri Lankan prison inmates. The sub-objective of this is to implement yoga workshops in all prisons in Sri Lanka, through yoga and meditation to prepare prisoners minds not to commit such crimes again, to provide them with motivation to build their lives well through these exercises. About 80 research articles published from 2005 to 2021 were reviewed and about 55 of them were selected for the study to collect the data required for this study. In addition, several resource books are also included. The research and findings of the study revealed that yoga practice and meditation have beneficial effects on the mental and physical health of inmates. These studies confirm that yoga exercises are effective in reducing the levels of mental distress in prison inmates and lead to different mental stress conditions and different thought control. As a recommendation, practice yoga exercises and yoga meditation for one or two hours daily for all prisoners in Sri Lanka.

**Keywords:** Mental Health, Physical Health, Prisoners, Prison Inmates, Yoga

**Early Detection and Management of Depression Among University Students**  
***Wickramarchchi, T.<sup>1\*</sup>, Thalpe Ahangamage, C.H.<sup>1</sup>, Gunathilaka, M.D.S.C.<sup>1</sup>, Nawala Hewage, K.T.R.<sup>1</sup>, Maleesha, R.P.G.S.<sup>1</sup>***

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

*[GWU-HICT-2020-17@gwu.ac.lk](mailto:GWU-HICT-2020-17@gwu.ac.lk) [GWU-HICT-2020-44@gwu.ac.lk](mailto:GWU-HICT-2020-44@gwu.ac.lk), [GWU-HICT-2020-27@gwu.ac.lk](mailto:GWU-HICT-2020-27@gwu.ac.lk), [GWU-HICT-2020-13@gwu.ac.lk](mailto:GWU-HICT-2020-13@gwu.ac.lk), [maleesha@gwu.ac.lk](mailto:maleesha@gwu.ac.lk)*

Students with depression may experience feelings of impulsivity, anxiety, fatigue, and apathy or inattention, attend lectures less often, and take longer to complete work than other students. As a result, the tendency to drop out of universities increases. They prefer to spend time alone. Also, some students turn to alcohol or drugs to control their symptoms. As a result, the mental health problems they are already experiencing can worsen. Historical approaches to diagnosing depression have been qualitative and may be time-consuming, hence requiring improved diagnostic solutions. The latest AI development provides a window of hope to develop applications that distinguish depression early enough and accurately while observing discretion and patients' confidentiality. It provides fellowships in reinforcing alternatives for various levels of depression. In this study, papers were selected from reputed databases focused on literature from 2018 to 2024, concentrating on themes such as "Depression detector among university students in Sri Lanka," "AI for depression," and "Depression symptoms." The selected conferences and journal articles comprehensively overview current AI applications in depression detection. Convolutional Neural Network (CNN), Visual Geometry Group 16 (VGG16), Residual Neural Network (ResNet-50), Facial Expression Recognition (FER) have been used in projects as algorithms. Validation methods such as Cross Validation and performance metrics were utilized. Many students were unaware of the mental disorder, and students consider suicide due to anxiety and stress. Some students who experienced emotional or sexual abuse and financial hardship are found to be key factors contributing to depression. In addition, regular smoking is also considered the main factor for depression. Through the questionnaire used in the survey, different levels of mild depression, moderate depression and severe depression can be identified. It was intended to identify the current state of depression in the respondents. The survey brought one hundred and twenty participants anxious that 40 % of students showed depressive symptoms of Moderate Level; 9.1% did not present any depressive symptoms. That sample is basically from university students. The sample size depends on the university level of students. It is from the age of 21 to 26 years old. It also reveals the extent of depression in learners and stresses the importance of screening and follow-up. Counseling services should be accompanied by group monitoring and health services to help students taking part in such services. Thus, the early AI-based depression management tool proposed in this study improves the identification and assistance of Sri Lankan university students, focusing on availability, precision, and confidentiality

**Keywords:** AI-Based Tool, Depression Management, Depressive Symptoms, User-Friendly Interface, University Student

## **Contributing to the Sustainable Development of Sri Lanka Through the Integration of Yoga and Spiritual Practices with Eco-Tourism**

**Udayanga, W.G.C.D.<sup>1\*</sup>**

*<sup>1</sup>Department of Indigenous Health Sciences, Faculty of Indigenous Health Sciences and Technology, Gampaha Wickramarachchi University of Indigenous Medicine.*

*Chamidudilshan959@gmail.com*

Yoga tourism is travel undertaken with the specific purpose of experiencing some form of yoga, whether spiritual or posture. Where the first is spiritual tourism; The latter is related to spiritual and wellness tourism. Thus, it is the movement made by a person or group with the aim of gaining some experience through yoga practice. This abstract shows how this can contribute to the sustainable development of Sri Lanka through the integration of yoga tourism with ecotourism and how it will affect not only sustainable development but also other sectors as a benefit. The main objectives of this abstract are to contributing to the sustainable development of Sri Lanka by integrating yoga tourism with the tourism industry, to enhancing the tourism experience of visiting tourists by developing their knowledge of yoga and integrating yoga with the ecotourism industry, to improving the mental health of tourists through the psychological impact of the yoga experience. Based on the research papers conducted during the period from 2015 to 2023, a literature review will be conducted based on the qualitative research method. Here, it was discovered that there is a strong need to connect yoga and spiritual practice with the environment in the tourism business and that its benefits are high. Yoga tourism, a niche form of eco-tourism, combines wellness and eco-tourism to promote physical, psychological, and spiritual well-being while minimizing environmental impact. It can significantly contribute to local economies and promote sustainable practices. Yoga retreats in destinations like Ulpotha, Sen Wellness Sanctuary, Sri Yoga Shala, Santani Wellness Resort & Spa and Ceylon Yoga Retreats support national strategies for sustainable development by supporting wellness experiences and responsible tourism practices. Studies suggest that yoga practitioners develop a stronger connection to the environment, leading to more sustainable behaviors and support for conservation efforts. This connection can enhance the sustainability of tourism destinations, ensuring economic benefits do not come at the expense of environmental health. Yoga tourism can also promote responsible tourism development, balancing economic, social, and environmental objectives. By doing this, mental concentration, mental calmness and mental purity happen very quickly. This helps to develop mental health through the psychological effect on their mind. By speeding up this process, this can help in the sustainable development of the country. This can contribute to Sri Lanka's sustainable development by enhancing the tourism experience, improving tourists' knowledge of yoga, and improving their mental health. Research conducted from 2015 to 2023 shows that yoga practitioners develop stronger connections to the environment, leading to more sustainable behaviors and conservation efforts. Yoga tourism can promote responsible tourism development, balancing economic, social, and environmental objectives. By promoting mental health through yoga and spiritual practices, it can accelerate the process of sustainable development in the country.

**Keywords:** Eco Tourism, Mental Health, Responsible Tourism, Sustainable Development, Yoga Tourism

## Investigating Antidote Herbs in Ampara, Sri Lanka

**Satharasinghe, S.A.C.M.<sup>1\*</sup>, Daranagama, D.A.N.D.<sup>1</sup>**

<sup>1</sup>*Department of Technology, Faculty of Indigenous Health Sciences and Technology, Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka*  
[chamodanisatharasinghe.uni@gmail.com](mailto:chamodanisatharasinghe.uni@gmail.com)

Poisoning is the harmful effects caused by ingestion, inhalation, or contact with toxic substances, posing significant health risks and often necessitating urgent medical intervention. The utilization of antidote herbs in traditional medicine systems has been a longstanding practice across diverse cultures worldwide. Despite their historical significance, there remains a gap in comprehensive ethnobotanical studies that systematically document these medicinal plants and their applications. Addressing this gap can enhance our understanding of traditional medicinal knowledge and potentially contribute to modern therapeutic practices. Furthermore, systematic documentation can aid in the conservation of these valuable plant species and the traditional knowledge associated with them. This research aims to investigate antidote herbs, focusing on their diversity, traditional uses, preparation methods, and perceived efficacy in treating poisoning. By examining traditional preparation methods and perceived efficacy, this study seeks to contribute to the understanding of these valuable botanical resources and their potential role in modern healthcare. A multi-disciplinary approach combining ethnographic fieldwork and semi-structured interviews with traditional healers and community members from 20 people was applied. Further botanical surveys and literature reviews were employed using Google Scholar and PubMed etc. The study was conducted in Ampara district, Sri Lanka, known for its rich biodiversity and traditional knowledge of medicinal plants, in the period of January 2024–March 2024. Some antidote herbs recorded are *Hibiscus hispidissimus griff* (Malvaceae), *Alpinia calcarata* (Andrews) Roscoe (Zingiberaceae), *Plectranthus zatarhendi var* (Lamiaceae), *Aristolochia indica L* (Aristolochiaceae) and *Acalypha indica* (Euphorbiaceae). Preparation methods vary widely, including decoctions, poultice, and topical applications. Certain antidote herbs are integrated into cultural rituals, highlighting their socio-cultural significance. Community perceptions of efficacy are positive, with evidence supporting the effectiveness of many antidote herbs in treating poisoning. Our findings reveal a rich reservoir of antidote herbs utilized by local communities, comprising a diverse range of plant species. It emphasizes the importance of documenting and preserving traditional knowledge of antidote herbs, as well as their potential contributions to modern healthcare. Integrating ethnobotanical insights into mainstream medical practices could lead to the development of evidence-based treatments for poisoning and other ailments. Furthermore, this documentation can foster greater collaboration between traditional healers and scientific researchers, enhancing the validation and refinement of herbal remedies. By bridging the gap between traditional wisdom and modern science, we can unlock new possibilities for addressing public health challenges and improving patient outcomes.

**Keywords:** Antidote Herbs, Ethnobotany, Ethnopharmacology, Indigenous Knowledge, Poisoning

## Sound Frequency Treatments for Chili Plant Growth and Yield

***Madushani, D.<sup>1\*</sup>***

<sup>1</sup> Department of Bioengineering, Faculty of Engineering, Lincoln University College, Malaysia.

*[dilushamadushani7@gmail.com](mailto:dilushamadushani7@gmail.com)*

Agriculture, being directly tied to human food consumption, plays a critical role in ensuring food security for mankind. However, the agricultural sector faces numerous challenges, one of the most pressing being the detrimental environmental impact of chemical fertilizers. Plants, during their growth stages, are influenced by a variety of external environmental factors, which, in turn, affect their yield and quality. This study explores an innovative approach to enhancing crop growth, yield, and quality using sound wave frequencies, a concept within the realm of smart agriculture. Specifically, the experiment focused on the KA2 chili plant variety, utilizing two distinct sound treatments: classical music (400-1500 Hz) and urban traffic noise (1000-2500 Hz). A control group without sound treatment was also maintained for comparative analysis. All plants were cultivated under greenhouse conditions with consistent environmental factors and were fertilized using organic compost. The results revealed that chili plants exposed to urban traffic noise (1000-2500 Hz) exhibited the most significant growth, including greater height, larger plant size, increased leaf numbers, and the highest yield of chilies. These plants also showed rapid growth within a short period. In contrast, plants treated with classical music (400-1500 Hz) demonstrated the least growth and yield, while the control group produced intermediate results. The findings suggest that urban traffic noise, with sound frequencies ranging from 1000 to 2500 Hz, positively influenced chili plant growth and yield when combined with compost manure. Future research could expand on these results by incorporating a wider range of sound frequencies, additional replicates, and different crop varieties. Additionally, the potential application of sound wave treatments could be extended to ornamental plants with industrial significance, offering new avenues for enhancing plant growth in various agricultural sectors.

**Keywords:** Agriculture, Chemical Fertilizers, Compost, Chili Plants, Sound Treatments, Frequencies

**Comparative Investigation on the Natural Antibacterial Activity of *Zingiber officinale* (Ginger) & *Allium Sativum* (Garlic) Against Important Food Borne Pathogens; *Staphylococcus Aureus*, *Bacillus Cereus* and *Escherichia Coli***

***Kuleshika, T.<sup>1\*</sup>***

*<sup>1</sup>Department of Agriculture, Faculty of Applied Science, Lincoln University College, Malaysia.  
[kuleshikatharindi@gmail.com](mailto:kuleshikatharindi@gmail.com)*

Biologically active molecules in many spices, especially ginger and garlic, exhibit antimicrobial and other important biomedical properties. There is a growing demand for natural immunity boosters considering the recent recurring pandemics and challenging effect by drug resistant pathogens on humans. The objectives of the current study are to investigate the efficacy of garlic and ginger as natural antimicrobials against few important food-borne pathogens and to evaluate the Minimum inhibitory concentration (MIC) of the crude extracts against the respective pathogens. During the study the antimicrobial activity of ethanolic extracts of garlic, ginger and ginger garlic mixture were analyzed against. *Staphylococcus aureus*, *Bacillus cereus* and *Escherichia coli* using agar well diffusion. The tests were performed in triplicates. The minimum inhibitory concentration of the three extracts against the same pathogens were analyzed by varying the concentration of the extracts. Gram staining and Catalase tests were carried out on the pure cultures to establish the validity of the test bacteria. Additionally antibiotic sensitivity test (ABST) was followed for the given pure cultures of pathogens against commercially available prominent antibiotics, Ciprofloxacin, Tetracycline and Penicillin G. The results were statistically analyzed via Minitab and SPSS. Garlic extract depicted the highest zone of inhibition against *Staphylococcus aureus* (34.67±1.53mm), *Escherichia coli* (26.33±1.52mm), and *Bacillus cereus* (32.33±0.58mm) in comparison with the ginger and mixture of ginger and garlic. Furthermore, both garlic and ginger + garlic extracts have shown significantly higher ( $p<0.05$ ) antibacterial activity compared to ginger extract against all three pathogens concluding that Garlic as the most effective extract against the tested pathogens. The results indicate that ginger, garlic, and their combination exhibit satisfactory antibacterial activity against *Escherichia coli*, *Staphylococcus aureus*, and *Bacillus cereus*, with effectiveness increasing alongside the concentration of the extracts. Both garlic and ginger demonstrated activity against both Gram-positive and Gram-negative bacteria, with garlic showing the highest inhibition levels. Specifically, the MIC of ginger against *Escherichia coli* was 29 mm at 50% concentration, while garlic's MIC was 31 mm at 25 % concentration. For *Bacillus cereus*, ginger's MIC was 33 mm at 25 %, and garlic was 25 mm at 25 %. Against *Staphylococcus aureus*, ginger's MIC was 22 mm at 6.25 %, and garlic was 25 mm at 12.5 % concentration. These findings highlight the potential of these plant extracts as effective antibacterial agents. In conclusion, Garlic and ginger have activity on both Gram positive and Gram-negative bacteria. Garlic and ginger both have different inhibitory effects on pathogenic organisms. Garlic, on the other hand, demonstrated a greater inhibitory effect and a wider variety of antimicrobial properties among the chosen isolates, indicating their antibacterial properties. The study's in vitro findings, while promising, are limited by potential variability in plant material, the specific concentrations used, and the lack of real-world application considerations, necessitating further research for practical validation.

**Keywords:** Antimicrobial, Garlic, Ginger, Minimum Inhibitory Concentration, Pathogens

## **AI-Powered Cricket: Revolutionizing Shot Classification with Convolutional Neural Networks**

***Ranasinghe, N.K.<sup>1\*</sup>, Kruglova, L.V.<sup>1</sup>, Liyanage, P.M.L.<sup>1</sup>***

<sup>1</sup>Academy of Engineering, Peoples' Friendship University of Russia named after Patrice Lumumba, Moscow, Russia  
naduniranasinghe@gmail.com, [1032225220@pfur.ru](mailto:1032225220@pfur.ru)

This study introduces an advanced technique for analyzing cricket strokes using convolutional neural networks to accurately classify cricket shots. This enables accurate assessment of cricket performance. Previous studies in the classification of cricket shots frequently depended on manual annotation and utilized elementary machine learning methods such as decision trees and support vector machines. However, these approaches were not sufficiently robust or adaptable. These techniques relied extensively on manually designed characteristics and had difficulties in handling a wide range of cricket situations. This study aims to fill these gaps by utilizing a convolutional neural network technique, together with data augmentation and a large, annotated video dataset. The model enhances accuracy and resilience in shot classification by integrating spatial and temporal variables. The study incorporates an extensive range of video clips, consisting of seven distinct shot types: straight-drive, hook, pull, defense, square-cut, sweep, and flick, with 190 annotated videos for each shot style. During the preprocessing stage, the 'OpenCV' package was used to methodically extract frames from the video recordings. Each video was systematically analyzed to extract 20 frames that were chosen randomly. These frames were then resized to dimensions of 100 × 100 pixels and normalized to a range of 0 to 1. This standardization of the input data ensures optimal training of the model. This model architecture utilized TensorFlow's "ImageDataGenerator" for data augmentation, which generated variations in rotation, translation, and scaling to improve the model's generalization. The dataset was split into training and test sets, with 80% assigned for training and 20% for testing, guaranteeing a fair sample allocation and model validation. The CNN architecture used in this study includes several convolutional layers to extract features, batch normalization to provide stable training, max-pooling layers to decrease spatial dimensions, and fully connected layers that ultimately lead to a SoftMax output layer for computing class probabilities. The study attained a remarkable accuracy rate of 98.92% in classifying the seven distinct shot types by examining the retrieved frames. The model's precision score, which is around 0.9692, highlights its capacity to properly detect significant events in the dataset while minimizing the occurrence of false positives. The combination of cricket expertise and machine learning techniques ushers in a new era of data-driven decision-making in cricket, offering stakeholders unique perspectives on player performance and game dynamics. Further studies may go into sophisticated techniques such as recurrent neural networks (RNNs) and multimodal mechanisms to improve the model's performance. Overall, this study greatly enhances the field of sports analytics, specifically in cricket, by presenting a thorough and precise model for classifying shots and opens opportunities for advanced evaluation of performance and strategic decision-making in sports.

**Keywords:** Convolutional Neural Networks, Cricket Analytics, Deep Learning, Shot Classification



## **Blockchain Technology for Enhancing Transparency and Efficiency in Sustainable Supply Chains.**

**Senevirathna, K.M.M.H.B<sup>1\*</sup>, Adhikari, S.L.K.<sup>2</sup>**

*<sup>1</sup>Edith Cowan University (ECU) Sri Lanka.*

*<sup>2</sup>St. George International Teacher Training Institute Sri Lanka.*

*[look4madawa@gmail.com](mailto:look4madawa@gmail.com), [Loo4sajitha@gmail.com](mailto:Loo4sajitha@gmail.com)*

The global focus on sustainability has led to a growing interest in ethical and environmentally friendly supply chains. Traditional supply chains often face challenges like fraud, inefficiency, and environmental degradation. Blockchain technology, could help address these issues by enhancing transparency and efficiency. This research explores the application of blockchain in sustainable supply chains, using a mixed-method approach. A literature review, case studies, interviews with industry experts, and quantitative data analysis were used to assess existing research, real-world applications, and challenges of blockchain in supply chain management. This study uniquely contributes by providing a comprehensive assessment of blockchain's potential and the specific challenges it faces in sustainable supply chain applications. Blockchain technology significantly improves transparency in supply chains by providing a secure, immutable record of transactions. This is crucial for verifying product authenticity, ensuring ethical sourcing, and maintaining sustainability standards. In the food industry, blockchain tracks the journey of products from farm to table, allowing consumers and regulators to verify the origin and quality of food products. This traceability helps identify contamination sources, reducing health risks and costs. In the fashion industry, blockchain automates payments and inventory management, ensuring timely delivery of raw materials and finished products in line with sustainability standards. Blockchain also facilitates the trading of carbon credits where companies can accurately track emissions and offsets, supporting efforts to reduce carbon footprints. This transparency prevents double-counting of credits and ensures environmental benefits are genuinely realized. The adoption of blockchain technology in sustainable supply chains faces several challenges. The technical complexity of blockchain networks can lead to high energy consumption and carbon emissions, potentially offsetting the sustainability gains achieved through improved supply chain management. Alternative consensus mechanisms, such as proof-of-stake, are recommended to address this. Data privacy and security are also critical concerns, as blockchain's transparency can expose sensitive business information. Companies should implement measures to protect confidential data while leveraging blockchain's benefits, such as permissioned blockchains or advanced cryptographic techniques. The integration of blockchain with existing systems is another significant challenge, with many companies operating legacy systems that may not be compatible with blockchain technology. A phased approach to integration is recommended, starting with pilot projects and gradually scaling up as the technology matures. Regulatory and standardization issues also pose obstacles to the widespread adoption of blockchain in supply chains, with the development of international standards and regulations to facilitate smoother implementation and build trust among stakeholders. Challenges like technical, privacy, integration, and regulatory issues need to be addressed. Investments, collaboration, and clear regulatory frameworks are crucial for achieving this goal.

**Keywords-** Blockchain, Sustainable Supply Chains, Transparency, Efficiency, Smart Contracts.



## **The Effect of Coach's Motivation on Novice Athletes' Performance Compared to Pre-Workout Supplements**

***Samarasingha J<sup>1,2\*</sup>, Mariani N<sup>1</sup>***

*<sup>1</sup>University of Cyberjaya, Malaysia.*

*<sup>2</sup>Department of Sports Science, Faculty of Applied Science, Lincoln University College, Malaysia.*

*[janaka@lincoln.edu.lk](mailto:janaka@lincoln.edu.lk)*

This study explores the impact of coach's motivation, dietary supplements, and intrinsic motivation on novice athletes' performance. Motivation boosts athletes' energy and increases their performance towards the desired goals. The intrinsic self-motivation and the motivational drive they get from the coach has been their strengths to achieve the training goals effectively. The present social context has been slightly changed due to the dependency on the dietary supplements. This study aims to measure the effectiveness and suitability of dietary supplements and coach's motivation on the athletes' performance. Further, it aims to examine the importance of the coach's motivation and support on efficiently fulfilling maximum performance needs. The result indicate that intrinsic motivation and coaching support significantly influence performance, while dietary supplements exhibit a relatively minor impact. These findings challenge the prevalent reliance on supplements for enhancing athletic performance and emphasize the importance of cultivating a strong a coach-athlete relationship, providing athletes with genuine support, and educating them on nutrition and effective training strategies. The study utilized a quantitative approach, involving 30 novice athletes who participated in three experimental conditions: performing alone, with coach motivation, and after pre-workout supplementation. Bench press maximum repetitions performed 70% of athletes body weight, were measured to assess performance. Statistical analysis using SPSS revealed that coach's motivation and intrinsic motivation had a stronger correlation with performance than dietary supplements. The study's finding underscores the significance of natural energy-boosting mechanisms, such as a positive mindset, a healthy diet and effective coaching in enhancing athlete performance. Dietary supplements, while not entirely disregarded, should not be considered a primary strategy for future research in this area, aiming to raise awareness about the factors that influence athletic performance and promote a balanced approach that acknowledges the potential benefits of natural methods while recognizing the limitations supplements. This study would work as a stepping-stone for the future research studies on this subject area with holding an aim of creating an awareness of factors that affect the performance of the athletes and acknowledging where to draw the boundary while getting the maximum benefits of them. The importance of making the coaches to provide reliable support and motivation to the athletes, and athlete's being educated well on nutrition and making genuine effort to enhance their performance with a good coach-athlete relationship, are emphasized.

**Keywords** - Intrinsic Motivation, Dietary Supplements, Coach Motivation, Performance

## **The Impacts of Climate Change on Occupational Safety and Health Law: Emerging Rules to Protect the World of Work**

***Spencer Vitharana. S.P.H<sup>1\*</sup>, Wannigama.D.L<sup>2,3</sup>***

*<sup>1</sup>Department of Law, Faculty of Law, Girne American University, UK*

*<sup>2</sup>Department of Infectious Diseases and Infection Control, Yamagata Prefectural Central Hospital, Yamagata 990-2292, Japan*

*<sup>3</sup>School of Medicine, Faculty of Health and Medical Sciences, The University of Western Australia, Perth, WA, Australia*

*[s.vith@aol.com](mailto:s.vith@aol.com), [leshanwannigama@ypch.gr.jp](mailto:leshanwannigama@ypch.gr.jp)*

The world of work is evolving rapidly with the simultaneous emergence of new technologies and scientific advancements alongside significant health hazards posed by climate change on the horizon. This shift increases the risks to businesses and society, necessitating the adoption of new workplace regulations to address climate-related threats. The International Labour Organization (ILO) predicts that climate change may impact global workers in various ways. The ILO estimates that over 70% of workers are likely to be exposed to climate-related health hazards, including heat stress, malnutrition, diarrhea, and malaria. Researchers from the World Health Organization (WHO) suggest that climate change affects human health by altering the safety of shelter, air quality, drinking water sources, food security, and nutrient levels in food. As a result, occupational health and safety (OSH) professionals may face significant challenges in adhering to existing occupational safety and health laws and protocols due to these emerging climate-related risks. Historically, the concept of health and safety in the workplace started with the industrial revolution in the United Kingdom in the European region. In the United States occupational health and safety laws started in the Railroad Industry by enforcing the usage of safety air brakes. Subsequently, many companies were concerned about workplace safety and incorporated diverse safety practices into the workplaces which led to a decline in workplace accident rate. OSH comprises laws and guidelines for protecting employees in their work environment. Studies show that these laws vary depending on the country and region. To this extent, work-related accidents and fatalities can be prevented by implementing safe practices, OSH law, and methods that bring substantial benefits to the business and society. Contrary to the new development the safety phenomena are totally lacking in developing countries and still not seen in some of the industries in developed nations. Occupational Safety and Health (OSH) is a multidisciplinary field that ensures workplace safety, health, and well-being. It involves recognizing, preventing, and controlling workplace hazards to promote and maintain the highest degree of physical, mental, and social well-being. In this context, the first part of this research aims to examine the variation in nonfatal work injury and illness incidents among the workforces in the United States and the European Union. The second part explores whether the research findings support early theories of industrial accident prevention. The third part examines and discusses how emerging weather-related regulations protect the workforce.

To analyze these relationships, secondary data has been obtained from the United States Bureau of Labour Statistics and the International Labour Organization for the United States and the European Union from 2015 to 2022. We use SPSS, and Excel spreadsheets to generate graphical and numerical output in a time series descriptive analysis. In conclusion, the research reveals a considerable decline in nonfatal accidents in the United States and Europe. However, new occupational health hazards are emerging due to climate change, necessitating the creation of a new rule of law for climate adaptation.

**Keywords:** Climate change, Hazards, Occupational health and safety law, Non-fatal injury, Rule of law, World of work

## **ABSTRACTS - MANAGEMENT**

---

**The Impact of Green HRM Practices Towards Integrating Green Reverse Logistics Practices in the Manufacturing Sector in South Asia**

***Karunawardhana, M.<sup>1\*</sup>, Fernando, P.I.N.<sup>2</sup>***

*<sup>1</sup> Department of Management, Faculty of Business and Accountancy, Lincoln University College, Malaysia.*

*<sup>2</sup> Faculty of Management, Uva Wellassa University, Badulla, Sri Lanka.  
imalif@uwu.ac.lk, [cmkarunawardhana@lincoln.edu.lk](mailto:cmkarunawardhana@lincoln.edu.lk)*

Environmental sustainability (ES) became a grand global challenge that disrupted the business world dramatically. Green Human Resource Management (GHRM) enables the manufacturing sector to develop accurate policies and procedures to result in attaining sustainable practices while Green Reverse Logistics (GRL) is dominating within the industrial sector through diverse motives, pressure from society, environment, legislation, and sustainable competitiveness. The collaboration of GHRM and the impact of GRL in the manufacturing sector in the South Asian context is rarely discussed. The aim of the research is to critically appraise the impact of Green HRM Practices towards integrating Green Reverse Logistics Practices in the Manufacturing Sector in South Asia. To achieve this aim, the selected objectives were, to identify the most prominent GHRM practices along with the GRLP observed in the manufacturing industry in the South Asian context and to critically evaluate the relationship between GHRM towards integrating GRLP. Overall research design is qualitative and followed by the systematic review strategy from reputed databases, Scopus, Social Science Citation Index and Science Direct. Removing the repetitions, 15 papers on reverse logistics were compiled for analysis using the PRISMA model. Under the search criteria authors used “environmental sustainability, green human resources management, green reverse logistics, sustainable environmental performances” as the key words by using different databases. The 15 articles were screened and selected by using the pre-defined evaluation criteria. Based on the themes identified among the selected literature it was observed that there are key principles to align the GRLP into the manufacturing sector through the adaptation of GHRM procedures. According to the results, GHRM would create sub-themes as such green recruitment, green training and development, green performance evaluation and rewarding for green performance the employee engagement on environmental sustainability related initiatives. Accordingly, all sub-themes contributed on diverse capacities, where many of them found to be positively correlated. Many scholars argued that environmental sustainability initiatives at the corporate level may not influence the employees to execute them unless those give benefits to them as per social exchange theory. Hence, linking GHRM to the business process would create a prepared and motivated set of employees who will eventually believe the importance of environmental sustainability. The paper summarizes that the GHRM would positively impact on establishing the GRL initiatives in the manufacturing sector, thus creating a win-win sustainable approach.

**Keywords:** Environmental Sustainability, Green Human Resources Management, Green Reverse Logistics, Sustainable Environmental Performances

## **Importance of Adapting an Expedite Arbitration Process Which Contributes to Innovation and Sustainable Development.**

**Anne, P.N.D<sup>1\*</sup>**

*<sup>1</sup>Department of Accounts and Finance, Faculty of Business and Accountancy, Lincoln University College, Malaysia  
[dias.nadee@yahoo.com](mailto:dias.nadee@yahoo.com)*

Arbitration is considered as the most successful dispute resolution method among the business community. It plays an important role in promoting innovation and sustainable development by fostering fairness, efficiency, flexibility, promoting responsible business practices, legal certainty, protecting intellectual property rights and providing a forum for cross-border collaborations. Effective dispute resolution mechanisms can support the timely implementation of environmental policies and projects. Expedited arbitration contributes to sustainability by reducing the duration and resource consumption of legal proceedings. This not only lowers the environmental footprint associated with prolonged disputes but also supports the efficient allocation of resources towards sustainable practices and technologies. The objective of this article is to identify how commercial arbitration will contribute to fostering innovation and sustainable development. This article employs a qualitative research method. In this method, researchers analyze and evaluate related literature, a literature study approach explores and integrates information from various sources such as books, national and international journals. A qualitative content analysis approach is used to qualitatively analyze the collected data. Innovation thrives in environments where ideas can be tested, developed and protected without undue delays. In this context, expedited arbitration is essential because it offers quick solutions to issues which could hinder innovation and advancement. The purpose of sustainable development includes social justice, economic viability and environmental care. These objectives are significantly supported by expedited arbitration, which guarantees the timely completion of sustainability projects and initiatives. By ensuring that commercial disputes are settled quickly, expedited arbitration contributes to stability during difficult economic times, like a financial crisis. Maintaining economic activity and funding initiatives that aim for long-term sustainability depend on this stability. Singapore has used commercial arbitration to promote innovation and long-term growth and has invested in legal infrastructure. Singapore has established itself as a favored arbitration destination in the Asia-Pacific region by creating an environment that is favorable for dispute settlement. Malaysia invested in legal infrastructure, advocated legislation that support arbitration and embrace technology improvements. They have used commercial arbitration as an engine for innovation and sustainable development by offering a trustworthy and efficient method for resolving business disputes. The author recommended that Sri Lanka needs to give priority to the adoption of modern arbitration laws that comply with international standards. Sri Lanka ought to use technology to bring arbitration procedures up to date and improve their accessibility and efficiency. The use of electronic evidence platforms, virtual hearings and online case management systems may speed up proceedings, lower expenses and accommodate parties from various parts of the world. By concentrating on these areas, Sri Lanka can improve its arbitration procedure effectively and it will help the long-term economic growth and development of the country.

**Keywords:** Commercial Arbitration, Economic Development, Sustainable Development

**Innovative Applications of Lotus Fibers in the Sri Lankan Fabric Industry:  
A Sustainable Approach**

**Rathnayaka, R.M.T.D.K.<sup>1\*</sup>**

*<sup>1</sup>Postgraduate Institute of Humanities and Social Sciences, University of Peradeniya, Sri Lanka  
[thamali.dk.rathnayaka@gmail.com](mailto:thamali.dk.rathnayaka@gmail.com)*

The contemporary textile industry increasingly adopts "eco-friendly" and "sustainability-conscious" practices due to environmental degradation and consumer safety concerns, leading to a higher demand for natural fibers over synthetic ones. Natural fibers, from both plant and animal sources, are valued for their flexibility, fineness, and high length-to-thickness ratio and are widely used in technical textiles and garments. The negative environmental impacts of synthetic fibers have spurred the development of sustainable methods for cultivating and using natural fibers. Natural fibers can come from plants, animals, or minerals. Plant-based fibers, like cotton and bast fibers, have seen recent innovations. In Sri Lanka, recent experiments have focused on banana fibers. Expanding this exploration, this study investigates the potential of lotus fibers, a material traditionally unused in Sri Lanka. Historically, lotus fabric was used by Burmese Buddhist monks in the 5th century to make robes, a time-consuming and skill-intensive process that made the fabric rare and expensive. Today, lotus fabric, reflecting traditional craftsmanship and cultural heritage, is produced by artisans in Cambodia, Myanmar, and Vietnam. This research focuses on creating lotus fiber fabric in Sri Lanka, examining the unique characteristics of local lotus plants, which vary in size, features, and species compared to those in other countries. Lotus fibers were extracted from lotus stalks through an eco-friendly process without chemical additives, spun into threads, and woven into textiles using traditional manual techniques. This sustainable approach utilizes discarded lotus stalks and produces biodegradable waste. The resulting fabric was rigorously tested for properties such as moisture absorption, adaptability, and durability, showing similarities to cotton and linen textiles. The results revealed that lotus fiber is a novel, soft, and slender natural cellulose fiber with excellent moisture absorption, adaptability, and durability, making it ideal for comfortable attire. Recognizing this potential, the study suggests that Sri Lanka could harness lotus fiber in fabric manufacturing, promoting economic growth and contributing to global sustainability efforts. Additionally, lotus fiber textiles offer medicinal benefits, addressing climate-related health issues among tourists. These textiles maintain their quality even after washing and sun exposure, generating high demand due to their unique properties and therapeutic effects. This research not only focuses on creating lotus fiber fabric but also on its practical application in garment production. Garments made from lotus fiber fabric were created and tested, demonstrating the material's suitability for the fashion industry due to its comfort and durability. Furthermore, the study explores the Ayurvedic and medicinal significance of lotus, adding value to its application. With guidance from indigenous medical universities in Sri Lanka, experiments were conducted to preserve and promote the medicinal value of the fabric. In conclusion, this research positions lotus fiber as a valuable addition to Sri Lanka's fabric industry, fostering innovation and sustainability. It emphasizes the importance of exploring and utilizing lotus fibers as a sustainable and innovative solution for the contemporary textile industry, highlighting their potential to drive economic growth and environmental stewardship in Sri Lanka.

**Keywords:** Lotus, Natural Fibers, Textile Material, Sustainable Fashion

## **Lean Accounting and Business Performance: A Conceptual Analysis Via Prisma Methodology and the Future Research Avenues**

***Ekanayake, S.<sup>1\*</sup>, Rajapaksha, S.<sup>1</sup>***

*<sup>1</sup>Department of Management Studies, Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka  
[shripali@gwu.ac.lk](mailto:shripali@gwu.ac.lk)*

Lean accounting is a methodology that aligns accounting practices with lean principles to enhance business performance. It involves simplifying and aligning management accounting practices (MAP) to support lean operations, leading to improved financial and operational outcomes. By adopting lean accounting practices, firms can streamline processes, reduce waste, and improve decision-making, ultimately contributing to enhanced business performance. The purpose of this conceptual paper is to review the existing literature on lean accounting and business performance, by exploring the integration of lean accounting principles with business performance metrics to enhance operational efficiency and financial outcomes. This conceptual paper discusses the association between a firm's organizational structure, accounting practices, and control systems of a manufacturing strategic initiative for understanding the impact of lean accounting on business performance. The study rigorously examines common method bias and the relationship between lean accounting, lean manufacturing, and performance, ensuring the validity of the measures used. This also aims to investigate the challenges and opportunities associated with implementing lean accounting in different organizational contexts and its implications for business performance and to propose a theoretical framework that outlines the relationship between lean accounting practices and business performance outcomes, providing insights for future research directions and practical applications. To perform the review, a Systematic Literature Review using the PRISMA methodology has been carried out. A keyword co-occurrence analysis has been carried out employing the sophisticated functionalities of VOSviewer software. All chosen articles were exclusively obtained from the Scopus database. The findings of this study identified a direct relationship between a lean manufacturing initiative and a firm's organizational structure, accounting practices, output controls, behavioral controls, and social mechanisms like peer pressure. Evidence suggests that performance is enhanced with a holistic lean strategy comprising both lean manufacturing and lean MAP, emphasizing the importance of collaboration between operations and accountants. Lean service implementation was confirmed to positively impact firm financial performance, highlighting the critical role of lean practices in enhancing overall business outcomes. Based on the findings, the study revealed that lean accounting was not in use at the time of the survey, indicating a gap in evidence of lean accounting practices. The article also focused on future research gaps including the necessity for longitudinal case studies to explore the long-term effectiveness of lean practices, especially in the context of cost leaders' experiences over time, therefore longitudinal case studies are recommended to range over the long-term effectiveness of lean practices. Future research should focus on investigating the potential contribution of Activity-Based Costing in the lean environment, as limited evidence is currently available on the concept of lean accounting.

**Keywords:** Business Performance, Future Research Avenues, Lean Accounting, Lean, Prisma Methodology.

## **Herbal Products Purchase Intention and Television Advertisements**

***Dasanayaka, K.G.N.M.<sup>1\*</sup>, Edirisinghe, S.D.<sup>2</sup>***

*<sup>1</sup>Department of Industrial Management, Faculty of Applied Sciences, Wayamba University of Sri Lanka.*

*<sup>2</sup>Department of Commerce and Financial Management, Faculty of Commerce and Management Studies, University of Kelaniya, Sri Lanka.  
swarna@kln.ac.lk, [madushanin405@gmail.com](mailto:madushanin405@gmail.com)*

At present, people's confidence in herbal production has increased and people have more concerns about their health, and they have shifted their consumption patterns towards the herbal products. The term, herbal products have a broad classification of different herbal specifications such as 'herbal drinks, herbal foods, herbal hair care, herbal skin care, herbal oral care and other herbal cosmetics.' Television media is at the forefront in promoting herbal products. The strategy of this research was to find what type of impact indicates on herbal products consumer purchase intention because of television advertisements with special reference to the Western province of Sri Lanka. By choosing deductive approach, researchers designed the conceptual framework using the 'Theory of Planned Behavior (TPB).' Further it was identified Subjective Norm and Perceived Behavioral Control on the purchase intention of herbal products that are advertised through television as a less research area. This research was used a quantitative research approach where a self-structured questionnaire was distributed to a sample of 385 consumers in the Western province of Sri Lanka. Population was the Sri Lankan consumers whereas the sample was selected from the consumers spanning across the Western province by using Stratified Random sampling technique. Basically, the study used descriptive analytical techniques to analyze the data and apart from that Pearson Product-Moment Correlation (PPMC) and Multiple Linear Regression (MLR) were performed to test the predetermined hypotheses of this research. The findings of this research showed that there was a strong correlation between attitude towards Television Advertising and perceived behavioral control on consumer purchase intention of herbal products that are advertised through television. There was a moderate correlation between subjective norm and consumer purchase intention of herbal products that are advertised through television. Moreover, Multiple Linear Regression results showed that there was a positive impact of attitude towards Television Advertising, subjective norm and perceived behavioral control on consumer purchase intention of herbal products that are advertised through television. Attitude towards Television Advertising, subjective norm and perceived behavioral control play a crucial role in forming consumer purchase intention of herbal products that are advertised through television. The manufacturers and advertisers of herbal products should pay attention to revise their existing advertising methods according to these variables. They have to focus more on these three variables since these three are the most influencing variables in consumer purchase intention. The manufacturers of herbal products can get the best outcomes if they set up their own Television Advertisements to enhance their consumer purchase intention on herbal products.

**Keywords:** Attitude, Consumer Purchase Intention, Perceived Behavioral Control, Subjective Norm, Television Advertisements on Herbal Products.



## **Factors Affecting Employee Turnover: Financial Institutions in Sri Lanka**

**Judith, H.F.<sup>1\*</sup>**

*<sup>1</sup>Nawaloka College of Higher Studies, Colombo, Sri Lanka*

*[judithharriet3@gmail.com](mailto:judithharriet3@gmail.com)*

The study aims to indicate the dynamics of Employee Turnover among the financial institutions in Sri Lanka, aiming to identify key factors influencing the Employee Turnover. The study will fill the gap in the context of Employee Turnover by examining among Sri Lankan Financial professionals. Focusing on constructs such as Training, Leadership, Job Security, Job Stress, and Career Growth, the research focuses to identify the relationship between these variables and Employee Turnover. A quantitative research approach on stratified sampling technique was used for the research. Online survey was used to collect data in explanatory research design, the study collected responses from 100 employees across various financial institutions in Sri Lanka. Deductive Reasoning was the theory used in the research. To ensure the accuracy of the findings, the study used Smart PLS for both measurement model testing and structural model testing. This analytical approach not only enhances the reliability of the results but also provides a comprehensive understanding of the relationship between the identified factors and Employee Turnover. The findings of the study reveal insights into the factors such as Training, Leadership, Job Security, and Career Growth and were found to have a negative and statistically significant influence on Employee Turnover. This suggests that investments in employee training, fostering effective leadership, ensuring Job Security, and providing opportunities for career advancement can effectively mitigate employee turnover rates among financial institutions. Conversely, the study also uncovered a positive and significant relationship between Job Stress and Employee Turnover. This highlights the significant impact of workplace stress on employee retention, signaling the need for proactive measures to address stressors in the work environment. The implications of these findings are profound for financial institutions in Sri Lanka. By analyzing the factors behind employee turnover, financial organizations can customize their human resource management strategies to create a more engaging and supportive work environment and financial service provision. This approach not only boosts employee engagement and retention but also contributes to improved organizational performance and long-term growth. However, it is essential to acknowledge the limitations of the study. The sample size of 100 employees, while providing valuable insights, may not fully capture the diversity and complexity of employee turnover across all financial institutions in Sri Lanka. To address this limitation and enhance the generalizability of the findings, future research could consider expanding the sample size and including participants from a broader spectrum of financial institutions and geographical regions. In addition to that, Time constraint was faced in the research study during the data collection phase. Therefore, it is recommended to align with proper milestones during data collection. In conclusion, this study contributes valuable knowledge to the field of human resource management by focusing on the factors influencing Employee Turnover among financial institutions in Sri Lanka. By addressing key factors such as Training, Leadership, Job Security, Career Growth, and Job Stress, financial institutions can proactively mitigate employee turnover rates and cultivate a workforce that is more engaged, productive, and committed to organizational success.

**Keywords:** Career Growth, Employee Turnover, Leadership, Job Security, Job Stress, Training

**Study on Professional's Perceived Opinion on the Impact of Market Inputs on Accuracy of Fair Value for Financial Reporting Purpose.**

***Prathapasinghe, D.<sup>1\*</sup>, Jayasekara, B.E.A.<sup>2</sup>, Adams, L.M.F.<sup>3</sup>***

*<sup>1\*</sup> Department of Business, Faculty of Business and Accountancy, Lincoln University College, Malaysia*

*<sup>2</sup> Department of Science for Technology, Faculty of Technology, University of Sri Jayewardenepura, Sri Lanka*

*<sup>3</sup> Institute of Knowledge Academia, Colombo, Sri Lanka*

*dprathapasinghe@gmail.com, erangajayasekara@hotmail.com, lmfadams@gmail.com*

This research study aims to ascertain professional perceived opinion on the impacts of Market Inputs (MI) on the accuracy of Fair Value (FV) assessment of Property, Plant and Equipment (PPE) for financial reporting purpose in complying with International Financial Reporting Standards (IFRS) 13. The IFRS 13 identifies the MI in three ways as level 1, 2 and 3. Considering the lack of previous studies on this topic in Sri Lanka, the objective of the study is to discover the relationship between MI and the accuracy of FV and its impacts on the accuracy of FV. This review consists of a literature review and a pilot survey of 50 chartered valuers and chartered accountants are quantitatively analysed via SPSS. Most notably, the Pearson correlation reveals statistical Significance at p-value of 0.0000 which is less than 0.01. It further reveals a strength of Correlation  $r = 0.690$  which indicates a strong positive relationship between MI and FV, meaning as the market inputs increases, the accuracy of FV also tends to increase. With regards, the analysis of Impacts of MI on FV accuracy, the Regression Analysis shows that the strength of Impacts is significant. The F-statistic is measured at 42.630, while the Significance of 0.0000 by indicating that the model is statistically significant, that means the independent variable significantly improves the prediction of the dependent variable. Further, the R Square value is estimated at 0.4760 - indicating that 47.6% of variability of FV is explained by MI. The adjusted R Square value is estimated at 0.4640 that indicates, when 1 unit increase in MI, accuracy of FV is to be increased by 46%. Literature review reveals that the effects of FV assessment extend to stakeholders, signifying thorough transparent valuation processes for investors to get dependable opinion to make informed decisions on investments. The implication of the findings is that the MI must be more quality and accurate with adequate accessibility for valuers to increase the accuracy of FV assessment and the accuracy of FV could be challenged in the backdrop of scant market inputs regime. The research recommends to establish comprehensive information regime at each corporate level and national level for improving the transparency, increase the input availability and accessibility for stakeholders, promote cooperation among the stakeholders, ensure complying of ethics standards among parties particularly for data protection and privacy, increase proper education and awareness regime among stakeholders, sharing reliable and accurate information with valuers in order to ensure dependability of financial reporting and to increase investor confidence. Research points out the obstacles of limited research and small sample size, suggesting further research to deal with these problems in the future by applying new ideas, models and methods that would help to create a better understanding of FV assessment and increase the accuracy of FV for financial reporting.

**Keywords:** Accuracy, Financial Reporting, Fair Value, Market Inputs, PPE Valuation.

## **The Tourism Industry and Its Economic Impact in Sri Lanka: A Historical Perspective From 1993 to 2022**

***Jayamanne, D.N.T.<sup>1\*</sup>***

*Postgraduate Institute of Humanities and Social Sciences, University of Peradeniya, Sri Lanka*  
*[tharanga.pgja@gmail.com](mailto:tharanga.pgja@gmail.com)*

The tourism industry has become one of the drivers of economic development in almost all countries including Sri Lanka in the determination of Foreign Direct Investment (FDI) and generates an impressive proportion to GDP. This paper examines the results at various macro and micro levels where the growth and economic contribution of Sri Lanka's tourism from 1993 to 2022 has been quantified after calculating the necessary variables including tourist arrival, gross tourism income, employment generation and tourism's contribution to the GDP. This study uses secondary data collected from the Central Bank of Sri Lanka and the Sri Lanka Tourism Development Authority, analyzed through descriptive analysis, Compound Annual Growth Rate and regression analysis. This paper presents changing trends in the tourism sector of Sri Lanka during the analyzed period. The Compound Annual Growth Rate (CAGR) that gives additional information on the industry's trend throughout the decades. According to the historical data analysis, during the period of 1993-2002, the Sri Lankan economy grew significantly in tourist arrivals (10.13% CAGR) as well as employment (20.01% CAGR) mainly due to post-conflict recovery and development, and strategic tourism marketing. But again, due to some disasters that included the Easter attacks and the COVID-19 pandemic worldwide from 2013 to 2022, there was a negative CAGR of (-0.1458) in tourist arrival and (-0.0386) in employment. A Multiple R value of 0.879 was obtained using regression analysis. Hypothesis H2, if accepted, means that there is a high positive relationship between the independent variables and the dependent variable, and this is presented by the coefficient estimate of 0.879. Flows of international tourists and gross revenue, therefore, proactively fluctuated due to global economic cycle, geopolitical situation, and local policy. Employment in the tourism sector followed these fluctuations, which demonstrated shifts in demand and the development of the necessary conditions. Such external shocks as natural disasters and political activities affected the country; nevertheless, tourism remained a part of Sri Lanka's GDP every year though fluctuating in some years and certain decades. Implications of the study highlight the importance of strong tourism policies and to manage infrastructural and marketing resources to improve tourism's competitive advantage and stability. Potential future research should focus on the effect of climate change, digitalization, and shifting customer preferences on the Sri Lankan tourism sector and suggest measures that could help develop sustainable tourism as well as strengthen the country's economic stability. Thus, this research supplements the current literature by offering a detailed evaluation of tourism's economic effects in Sri Lanka which is highly important for the target audiences, including policymakers, practitioners, and researchers to advance sustainable tourism in the country. This last section reasserts the sector's strength even in the face of global issues and stresses the importance of future-proofed approaches to leveraging the sector for future growth and prosperity.

**Keywords:** CAGR, GDP, Gross Tourism Income, Tourism, Regression.

## **Navigating Academic Success: Leadership Styles and Their Influence on Private Higher Education Institutes' Academic Staff**

***Cyril, G.<sup>1\*</sup>***

*Department of Postgraduate Studies, Lincoln University College, Malaysia.*

*[gunarathne@nibm.lk](mailto:gunarathne@nibm.lk)*

The intricate relationship between academic staff performance and leadership styles in private higher education institutions is examined in this study. Understanding successful leadership strategies is essential for promoting academic accomplishment and institutional success as the higher education landscape changes. This study offers insightful information about how to maximize academic staff productivity, motivation, and general job satisfaction in private higher education. Using a thorough literature review methodology, the study aims to find patterns, trends, and best practices in leadership that support the performance of academic staff members and institutional growth by combining data from many sources. The literature study examines and assesses the efficacy of several important leadership philosophies in the context of private higher education, including transformational, transactional, distributed, and servant leadership. The study also investigates the difficulties academic leaders in for-profit higher education institutions encounter, including handling the varied backgrounds of their personnel, striking a balance between institutional objectives and academic freedom, and surviving the cutthroat environment of the for-profit sector. The study also looks at how leadership affects academic staff members' capacity to promote creativity, excellent research, and successful instruction. The study considers the impact of socioeconomic and cultural aspects that may alter leadership dynamics in this context to ensure a thorough analysis. Additionally, it looks at how recent international events like the COVID-19 pandemic have affected higher education leadership styles. It does this by analyzing how academic leaders have responded to novel obstacles like the quick transition to online learning and the growing demand for staff support in uncertain times. Faculty performance in higher education institutions is positively correlated with transformational leadership. By giving employees demanding work, autonomy, mutual trust, encouragement for creativity, increased confidence, and teamwork, this leadership style enhances employee performance. It's interesting to note that, in certain academic settings, laissez-faire leadership also has a favorable effect on faculty performance, whereas transactional leadership typically has a negative effect. The study also reveals that the association between faculty performance and leadership styles is significantly moderated by organizational culture. The association between faculty performance and laissez-faire leadership is negatively moderated, indicating that the efficacy of this leadership style may vary depending on the situation. The results indicate that the most successful leadership practices may involve a sophisticated approach that prioritizes transformational leadership styles while considering the organizational and cultural environment of private higher education. The findings of the study have important ramifications for academic personnel, institutional administrators, and legislators in the private higher education market. It is advised that more empirical research be conducted to fill up the gaps in literature and to confirm the results in particular institutional settings of the private higher education sector.

**Keywords:** Academia, Leadership, Organizational Culture, Performance, Private Higher Education

## **Influence of E-Service Quality of E-Tailors on E-Customer Satisfaction and E-Customer Loyalty Towards Consumer Electronics Products: Moderating Impact of Demographic Variables**

***Kasunthika, R.K.<sup>1\*</sup>, Dissanayake, D.M.R.<sup>1</sup>***

***<sup>1</sup>Department of Marketing Management, University of Kelaniya, Sri Lanka.***

***[r.k.kasunthika@gmail.com](mailto:r.k.kasunthika@gmail.com)***

This study's main goal is to investigate how consumer electronics' e-tailors' e-service quality affects e-customer loyalty in Sri Lanka, with e-customer satisfaction as mediating factor and age, gender, and income acting as a moderating factor. The research used E-S-Qual and E-RecS-Qual models to assess the quality of e-services. Contact, responsiveness, compensation, privacy, system availability, efficiency, and fulfillment are the seven factors. Judgmental sampling and a self-administered questionnaire were used to collect data from the respondents. In research questionnaires, add filtered questions to collect data from the right respondents. Utilizing Smart PLS 4.0 and SPSS 23.0 for structural equation modeling, the data are evaluated to explore the model and verify the hypothesis. The results demonstrate that e-customer loyalty is statistically impacted by three e-service quality factors.; efficiency, fulfillment, and responsiveness. However, the findings also showed that there is a direct and indirect relationship between e-service quality and e-customer loyalty, with e-customer satisfaction acting as a mediator. The results have significant ramifications for academics and markets. The study's findings imply that the relationship between e-service quality and e-customer loyalty may be partially moderated by e-customer satisfaction. The association between e-service quality and e-customer loyalty was also found to be strengthened by age, and to be positively correlated with both gender and income. This research contributes to the body of literature on e-service quality by illustrating that e-service quality is a multidimensional construct that arises from e-service quality. Because it looks at how consumer behavior affects e-tailors' choices on customer loyalty for consumer electronics. Literature has not previously made considerable use of this analytical point of view. For e-tailors, efficiency, fulfillment, and responsiveness are critical priorities. Order delivery, issue resolution, and proactive client communication fall under the purview of e-tailor. The current study adds to the e-service quality factor structure' validation and analysis across many scenarios. The study also offers insightful information regarding the impact of electronic service quality on e-customer satisfaction and e-customer loyalty.

**Keywords:** Consumer Demographics, E-Customer Satisfaction, E-Customer Loyalty, E-Service Quality

## **Nexus Between Foreign Direct Investments and Carbon Dioxide (CO<sub>2</sub>) Emissions in Sri Lanka: The Mediating Role of Trade Openness**

***Hansani, W.M.<sup>1\*</sup>, Walakumbura, S.H.M.L.<sup>1</sup>***

*<sup>1</sup>Department of Accountancy and Finance, Faculty of Management Studies, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.  
lakmini@mgt.sab.ac.lk, [m.hansani98@gmail.com](mailto:m.hansani98@gmail.com)*

The intricate relationship between globalization and environmental sustainability has attracted scholarly attention in recent decades. Among the various aspects of globalization, Foreign Direct Investments (FDI) and Trade Openness can be considered as key drivers of economic growth, but their environmental consequences are highly debatable. Consequently, policymakers and researchers are endeavoring to formulate and implement policies to balance economic development along with environmental sustainability. This study examined the relationship between Foreign Direct Investments and CO<sub>2</sub> Emissions with the mediating role of Trade Openness in Sri Lanka from 1990 to 2022 while using secondary data obtained from the World Bank data library. The Quantitative research method has been employed in the study. In this study, Foreign Direct Investments have been considered as the independent variable, CO<sub>2</sub> Emissions have been considered as the dependent variable. In contrast, Trade Openness has been considered as the mediating variable. The hypotheses were tested using Structural Equation Modelling (SEM). The findings of the study reveals that foreign direct investment inflows positively affect carbon emission which implies that a rise in industrial and economic activity, which is generally tied to increased energy consumption and, as a result, higher carbon emissions. This result is consistent with the pollution haven theory, which postulates that multinational firms might shift output that produces large amounts of pollution to nations with laxer environmental laws. Moreover, the results revealed a negative effect between foreign direct investment outflows and carbon emission in Sri Lanka and this inverse link can be explained by the investment diversion effect, which postulates that domestic companies may transmit less environmentally friendly industrial practices to other nations through their foreign investments. It can also be claimed that companies making foreign investments may use greener technologies in their home countries to comply with international norms, thus enhancing domestic environmental effects. Mediation results affirm that the trade openness significantly mediates the relationship between FDI and Carbon emission in Sri Lanka by suggesting that the degree of a nation's integration into the global economy might change the way foreign direct investment impacts environmental quality. Through greater competition and innovation, trade openness may aid in the spread of environmentally friendly practices and technology, potentially reducing the negative environmental effects of FDI inflows. The results indicated the significant influence of welcoming Foreign Investments through open trade policies on both economic growth and environmental impact. By providing critical insights, it helps policymakers to strike a balance between fostering economic development and ensuring environmental sustainability.

**Keywords:** CO<sub>2</sub> Emissions, Foreign Direct Investments, Trade Openness

## **Exploring the Promotional Barriers in Wellness Tourism Development: A Case Study of Kandy Sri Lanka.**

**Dilrukshi, I.G.N.P.<sup>1\*</sup>**

*<sup>1</sup>Department of Indigenous Health Sciences, Faculty of Indigenous Health Sciences and Technology, Gampaha Wickramarachchi University of Indigenous Medicine, Yakkala, Sri Lanka.  
[dilrukshinirmala98@gmail.com](mailto:dilrukshinirmala98@gmail.com)*

Begin it with a nice introduction to spa tourism as a hotspot for tourism, attracting a diverse group of tourists interested in spa and rejuvenation services. The objective of this study is to unravel the complex web of promotional barriers faced by wellness centers in Kandy through a specific lens of the role of competitive dynamics in the tourism industry. The competitive landscape of the Kandy spa industry is emerging as a double-edged sword, creating strong barriers to tourism entry and service access, fostering innovation and service differentiation. This research is a mixed method. The data was gathered through 30 semi-structured interviews with selected industry stakeholders, while utilizing purposive sampling to select the sample. Data was analyzed using thematic analysis. Are these promotional barriers demand for reduced raw material costs and economic incentives underscores a broader need for policy frameworks that facilitate the growth of the spa industry while ensuring affordability and accessibility. Moreover, the technological divide is also culturally essential. Responsive marketing strategies highlight the importance of inclusive and adaptable promotional practices that resonate with global audiences. This research asserts that addressing these multiple barriers requires a collaborative approach, government initiatives, unification of industry standards, and community engagement to pave the way for effective promotion. The competitive dynamics within the Kandy wellness spa industry are challenging but offer a unique opportunity for innovation in service delivery, marketing strategies and customer engagement. Through an in-depth examination of these dynamics, this study contributes to the broader discourse on wellness tourism promotion by offering insights and strategies to overcome identified barriers. Ultimately, the effectiveness of Kandy spa promotion depends on a multifaceted strategy of linguistic diversity, competitive pressures, reputational challenges, technological advancements, and cultural sensitivities. By exploring these dimensions, this research aims to provide a comprehensive understanding of the promotional landscape of the burgeoning Kandy wellness tourism sector, offering a road map for improved visibility, accessibility, and performance.

**Keywords:** Challenges, Destination Marketing, Promotional, Wellness Tourism



## **Factors Affecting E-Commerce Adoption in Small and Medium-Sized Enterprises in Sri Lanka**

***Kasturi Arachchi, C.J.H.<sup>1\*</sup>, Kasturi Arachchi, G.G.O.***

*<sup>1</sup>Business School, Sri Lanka Institute of Information Technology, Sri Lanka.*

*[chathujhan@gmail.com](mailto:chathujhan@gmail.com), [geesarakasturiarachchi@gmail.com](mailto:geesarakasturiarachchi@gmail.com)*

This research study aimed to uncover the management perspective on factors affecting e-commerce adoption in small and medium-sized enterprises (SMEs) in Sri Lanka. It specifically investigated the key barriers hindering e-commerce adoption, including infrastructure, cultural, and behavioural barriers. The study employed a quantitative research methodology, deemed suitable for capturing the significant quantitative aspects connected to the management perspective on e-commerce adoption in Sri Lankan SMEs. Adopting the positivism paradigm and a deductive research approach, the study utilized a survey strategy for data collection. To gather data, a questionnaire survey was conducted to 50 managers, 10 entrepreneurs, and 100 other staff members randomly selected from 25 SMEs in the Colombo district. Descriptive statistical analysis was used to analyze the collected data. The study revealed several critical factors impacting e-commerce adoption in SMEs. Firstly, high initial investment costs are identified as a significant barrier. The financial burden associated with setting up e-commerce infrastructure discourages many SMEs from adopting these platforms. Secondly, data security and privacy concerns are major issues among participants. Ensuring the safety of sensitive information is crucial for building trust and encouraging the adoption of e-commerce platforms. Technical literacy and skills are also significant factors. The study found that the lack of technical expertise among employees hampers the successful implementation and utilization of e-commerce platforms. This concern is compounded by the availability of skilled professionals in the field, which is perceived as inadequate by the surveyed participants. The shortage of qualified personnel can impede the growth and success of e-commerce initiatives in SMEs. Cultural preferences also play a role in e-commerce adoption. Some consumers still prefer traditional, face-to-face interactions over online transactions. This preference for personal interaction can affect the adoption rate and success of e-commerce initiatives, as businesses may be reluctant to shift to an online model if their customer base favours conventional methods. The study offers several recommendations to address these barriers. Investing in digital literacy programs for employees is crucial to equip them with the necessary skills to navigate e-commerce platforms effectively. Ongoing training should be provided to keep staff updated on the latest trends and technologies in e-commerce. Additionally, financial incentives or subsidies for SMEs could encourage investment in e-commerce technology. By alleviating the initial financial burden, SMEs may be more inclined to adopt e-commerce solutions. Moreover, enhancing data security measures can address privacy concerns and build trust among users. Implementing robust security protocols and educating employees about best practices can mitigate risks associated with data breaches. Lastly, addressing cultural barriers requires promoting the benefits of e-commerce to both businesses and consumers. Highlighting the convenience and efficiency of online transactions may help shift consumer preferences towards digital platforms.

**Keywords:** E-Commerce Adoption, Small and Medium-Sized Enterprises, E Barriers, Digital Literacy, Data Security



## **The Role of Armed Forces in Flood Management: A Case Study of Ratnapura District**

***Kasturi Arachchi. C.J.H.<sup>1\*</sup>, Kasturi Arachchi G.G.O.<sup>1</sup>***

*<sup>1</sup>Business School, Sri Lanka Institute of Information Technology, Sri Lanka.*

*[chathujhan@gmail.com](mailto:chathujhan@gmail.com), [geesarakasturiarachchi@gmail.com](mailto:geesarakasturiarachchi@gmail.com)*

Ratnapura's geographical location and climatic conditions make it particularly vulnerable to floods. The region's dense forests and numerous water catchments accelerate water accumulation during heavy rainfall, often resulting in sudden and severe flash floods that pose significant risks to the area. So, this study aimed to explore the role of armed forces in flood management in the Ratnapura district. The primary objective of this study was to investigate how flood is managed in the Ratnapura district and to understand the specific roles played by the Armed Forces in these efforts. The study set out several specific objectives: to identify the key government agencies or departments responsible for flood management in Ratnapura; to delineate the roles and responsibilities of the Armed Forces in handling flood disasters in the district; to highlight the challenges faced by the Armed Forces and police in flood management; and to extract key lessons from past flood events that have shaped the current approach of the Armed Forces and police towards flood disaster management in Ratnapura. To address these objectives, a Mixed Method approach was employed, with a particular focus on the 'convergent parallel mixed method' as the primary research design. This study used survey strategies and case studies to explore this research problem. Data was collected through questionnaires, document surveys, and interviews with officers from the tri-forces and other individuals involved in flood management in Ratnapura. Thematic analysis was applied to analyze qualitative data, while descriptive statistical tools were used for quantitative data analysis. The findings indicate that the current flood management strategies in Ratnapura District are effective, with local communities well-informed about flood risks and preparedness measures. The coordination between government agencies during floods is efficient, highlighting the effectiveness of inter-agency collaboration. Early warning systems have proven crucial in mitigating the adverse impacts of floods, underscoring their importance in flood management. Additionally, the tri-forces and police are well-trained for flood management, significantly enhancing the overall efficacy of flood response. Based on the findings, several recommendations for future improvements are proposed. Comprehensive training programs should be developed and implemented for individuals involved in flood-related operations, focusing on areas such as search and rescue, evacuation, medical aid, infrastructure repair, and coordination with civilian authorities. Regular drills and exercises should be organized to ensure participants are well-prepared and capable of responding effectively to flood emergencies, with an emphasis on real-life scenario simulations and teamwork. It is also essential to allocate adequate resources and equipment to participants, particularly those involved in medical aid and infrastructure repair, ensuring they have the necessary tools and materials required during flood events.

**Keywords:** Flood Management, Ratnapura District, Armed Forces, Disaster Response, Disaster Management

## **Upskilling Human Resources as a Futuristic Strategy in the Software Development Industry in Sri Lanka**

**Udawatte, B.<sup>1\*</sup>, Bhaumik, A.<sup>2</sup>**

*<sup>1</sup>Department of Management, Faculty of Accountancy and Business, Lincoln University College, Malaysia.*

*<sup>2</sup>Lincoln University College, Malaysia.*

*amiya@lincoln.edu.my, pbudawatte@lincoln.edu.my*

The contribution of the software industry to the Sri Lankan economy has recorded significant growth over the past few decades. According to 2020 statistics, the market size was USD 1.2 billion. It is expected that if the resources are mobilized productively, there could be more benefits to the Sri Lankan economy, industry and professionals. Even though the public and private sector initiations have created a favourable environment for the advancement of the industry, the economic crisis has forced a large number of skilled professionals in the industry to leave for better destinations. The Computer Society of Sri Lanka mentions that nearly or over ten thousand information technology professionals have left the country. Therefore, sustaining and retaining the skilled workforce has been a critical factor. This study aimed to examine the strategies the Sri Lankan software industry can utilize to improve the upskilling of human resources. The specific objectives were to assess the current skill gap in the software development industry in Sri Lanka, to evaluate the effectiveness of the existing upskilling programs and to propose strategic recommendations to meet the industry's future demands. A structured questionnaire was used to explore the gaps in skills among information technology employees and the effectiveness of the current upskilling programs. Semi-structured interviews were conducted with trainers to understand their views on how to upgrade the current programs. There have been regular complaints regarding the mismatch between the available employment opportunities and the skills the workforce is equipped with. The study focused on the potential benefits the upskilling programs can bring to the workforce, the issues associated with the existing upskilling programs and the effective methods the business organizations and the trainers could rely on. In assessing the skills gap in the industry, it was revealed that there is a skill gap among the employees in the industry, especially among the novices. Upgrading and updating of the skill sets have been mostly done in informal ways. These skills gaps have been leading to project failures and delays. Business organizations in the industry have to spend a lot regularly on training and development programs increasing the management costs. In response to the existing upskilling programs, the respondents expressed that the relevance and quality of new strategies in training and development should be improved to target an increase in retention rates of the employees in the industry. The suggestions made by the respondents were; a collaboration between the private and public sector organizations, a methodical training and development framework for newcomers and seniors, establishing and commencing to launch an exchange of expertise of renowned industries in the world, a proper evaluation criteria to verify and appraise continuing professional development programs for individuals and to boost the productivity of the industry.

**Keywords:** Futuristic Strategy, Human Resources, Software Development Industry, Sri Lanka, Upskilling

## **Lean Human Resource Management: Analysis Based on Prisma Methodology and The Future Research Agenda**

***Dissanayake, F.<sup>1\*</sup>, Rajapaksha, S.<sup>1</sup>***

*<sup>1</sup>Department of Management Studies, Faculty of Indigenous Social Sciences and Management Studies,*

*Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka*

*fiushani@gwu.ac.lk*

Lean Human Resource Management represents an advanced strategic approach that integrates lean principles into HR practices to optimize workforce efficiency, reduce waste, and align human resources with the organization's goals. Lean HRM emphasizes the optimal use of human resources with minimal waste. The purpose of this conceptual paper is to review the existing literature on lean human resource management and organizational effectiveness, by exploring the integration of lean HRM practices with optimize workforce efficiency metrics to enhance organizational effectiveness and innovations. The article discusses the association between lean HRM practices and organizational effectiveness, proposing a theoretical framework for understanding the impact of lean HRM on overall organizational effectiveness. This also aims to investigate the challenges and opportunities associated with implementing lean HRM in different organizational contexts and its implications for organizational effectiveness and to propose a theoretical framework that outlines the relationship between lean HR practices and organizational outcomes, providing insights for future research directions and practical applications. PRISMA methodology has been used to screen articles and the protocol along with the PRISMA flow diagram for article screening has been developed. VOS viewer software has been used to perform keyword co – occurrence analysis. Articles have been obtained from the Scopus database to ensure the quality of the input. The findings of this study identified there is a meagreness of studies on lean HR practices as a result of Employee resistance, Lack of management commitment, inadequate alignment HR strategy with lean goals and poor leadership. Emphasizing the importance of correlation between effectiveness and lean HR practices, Lean HR practices implementation was confirmed to positively impact workforce efficiency, highlighting the critical role of lean practices in enhancing overall organizational effectiveness. Based on the findings, the study revealed that lean HRM was not in use at the time of the survey, indicating a gap in evidence on lean HR practices. The article also identified future research gaps, highlighting the need for longitudinal studies to examine the long-term effectiveness of lean HRM practices, particularly in the context of how human talents maintain organizational effectiveness over time. It is recommended that extended case studies be conducted to assess the sustained impact of lean HRM on achieving and maintaining organizational goals. Furthermore, future research should explore the potential role of lean adaption within a lean HRM framework, as there is currently limited evidence on how lean HRM practices can be effectively integrated with HR strategies to enhance overall organizational effectiveness. This study provides critical insights to academics and industry practitioners on integration of Lean into HRM.

**Keywords:** Lean HRM, Organizational Performance, Lean, Future research agenda, PRISMA Methodology

## **ABSTRACTS – EDUCATION**

---

**The Teacher's Role in Accelerating Innovation and Creativity in Students Through Classroom Technological Learning-Teaching Activities for the 21st Century to Promote Sustainable Development**

***Abilash, K.<sup>1\*</sup>, Majid, M.H.M.<sup>2</sup>, Mahthi Hassan, N.<sup>3</sup>***

*<sup>1</sup> BT/KK/Akkuranai Bharathy Vidyalayam, Sri Lanka*

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

*<sup>3</sup> British Modern International School, Doha*

*[abiabilash716@gmail.com](mailto:abiabilash716@gmail.com), [majidmhm9696@gmail.com](mailto:majidmhm9696@gmail.com)*

The rapid technological advancements of the 21st century not only aim to achieve the goals and objectives expected in today's modern classroom learning-teaching methods but also significantly enhance the overall educational system. Every teacher can introduce innovative changes to the learning-teaching processes by implementing various novel strategies. This allows both educators and students to perform their tasks and activities more effectively, as modern, innovative strategies come into practice to meet the demands of the technological world. Additionally, these innovations accelerate students' creative activities and discoveries, thereby advancing the overall education system. The use of various technologies is, therefore, considered a crucial aspect of teaching-learning process innovations in the 21st-century technological world. Moreover, these advancements contribute to sustainable development by fostering a culture of continuous improvement and resource efficiency in education. By integrating sustainable practices and principles into technological learning-teaching activities, educators can help students develop an awareness of environmental and social responsibilities. This study titled "The Teacher's Role In Accelerating Innovation And Creativity In Students Through Classroom Technological Learning-Teaching Activities For The 21st Century to Promote Sustainable Development" was conducted based on schools in the Koralaipattu educational zone of the Kalkudah division in the Batticaloa district. This quantitative research employed a quality approach. Five schools in the zone were selected as a sample, including 90 senior secondary teachers, 125 students, and 25 parents chosen through stratified random sampling. Data collection tools such as questionnaires, interviews, and documents were used to gather information from the participants. All selected schools were observed. The collected data were classified, analyzed, interpreted, and discussed using descriptive and inferential statistical methods via SPSS software. Based on innovative strategies and approaches, teachers in the 21st century can enhance the skills they are expected to achieve. Furthermore, this study will serve as a foundation for future research aimed at shaping each student into a productive, innovative thinker according to cognitive, affective, and psychomotor domains.

**Keywords:** Learning-Teaching Methods, Technology, Innovations, Sustainable Development, Acceleration, Senior Secondary

## **Impact of Smartphone Addiction on Educational Achievement Among Sri Lankan Advanced Level Students**

**Weerasinghe, S.R.<sup>1\*</sup>, Vivekananda, B.<sup>2</sup> and Herath, H.M.C.J.<sup>3</sup>**

<sup>1</sup>*Faculty of Social Science, Arts, and Humanities, Lincoln University College, Malaysia.*

<sup>2</sup>*Faculty of Computer Science and Multimedia, Lincoln University College, Malaysia.*

<sup>3</sup>*Faculty of Health Science, Open University of Sri Lanka, Sri Lanka.*

*[sachweerasinghe@yahoo.com](mailto:sachweerasinghe@yahoo.com)*

Smartphone Addiction (SA) is characterized by excessive time spent on devices and anxiety or agitation when separated from them. This study aimed to explore the relationship between smartphone addiction and educational achievement among Sri Lankan Advanced Level (A/L) students and to examine the perceived impact of smartphone use on their education. To examine the relationship between smartphone addiction and educational achievement, 506 A/L students were randomly sampled from six leading 1AB schools in the Colombo education zone. Among the participants, 52% were boys (n=253). The majority of participants were 18 years old (77%), with others aged 17 years (22%) and 19 years (1%). The mean age of the sample was 17.8 years. Using a prepared questionnaire, demographic details, overall self-reported educational achievement considering G.C.E. O/L results and current A/L status, and the self-reported impact of smartphone use on education were obtained. To identify participants addicted to smartphones, the content-validated, pre-tested, self-administered Short Version of the Smartphone Addiction Scale (SV-SAS) was used. SV-SAS comprises 10 items, each scored on a Likert scale from 1 (strongly disagree) to 6 (strongly agree). Cut-off values of  $\geq 31$  for males and  $\geq 33$  for females were used to identify addicted participants. Among the participants, 25 (5%) reported their overall educational achievement as very high, 128 (25.2%) as high, 286 (56.5%) as moderate, 56 (11.1%) as low, and 11 (2.2%) as very low. Of those reporting very low, low, moderate, high, and very high achievement, 63.4%, 48.21%, 31.46%, 26.56%, and 25% respectively were addicted to smartphones. A statistically significant relationship was found between smartphone addiction and self-reported overall educational achievement (Pearson Chi-square value = 13.565, Likelihood ratio = 12.892, p-value = 0.012 < 0.05). Regarding the self-reported impact of smartphone use on education, 31 (6.1%) participants reported a very positive impact, 164 (32.4%) a positive impact, 198 (39.2%) no significant impact, 99 (19.6%) a negative impact, and 14 (2.7%) a very negative impact. Among those who reported very negative, negative, no impact, positive, and very positive impacts, 57.14%, 53.53%, 29.80%, 24.39%, and 16.12% respectively were addicted to smartphones. A statistically significant relationship was found between smartphone addiction and self-reported impact of smartphone use on education (Pearson Chi-square value = 22.858, Likelihood ratio = 25.964, p-value = 0.011 < 0.05). This study demonstrates a significant relationship between smartphone addiction and lower educational achievement among A/L students in Sri Lanka. Students who reported lower educational achievements were more likely to be addicted to smartphones. Furthermore, those who perceived their smartphone use as having a negative impact on their education were also more likely to be addicted. These findings suggest the need for interventions to address smartphone addiction to enhance educational outcomes among students.

**Keywords:** Smartphone Addiction, Educational Achievements, Sri Lankan Advanced Level Students

## **Students' Perspectives and Enrollment Intentions Towards Modern Higher Education Institutions**

***Kumarasinghe, K.K.A.H.<sup>1\*</sup>, Pathirathna, Y.H.P.S.S.<sup>1</sup>, Niranjala, T.A.S.H.<sup>1</sup>, Perera, L.A.P.C.<sup>1</sup>***

*<sup>1</sup>Faculty of Indigenous Health Sciences and Technology, Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka.*

*[harshani@gwu.ac.lk](mailto:harshani@gwu.ac.lk)*

In today's competitive educational landscape, understanding students' perspectives and enrollment intentions is crucial for higher education institutions to thrive. This study investigated on focusing on how students' attitudes, perceived behavioral control, and subjective norms influence their decisions to join higher educational institutions. The research, based on the Theory of Planned Behavior (TPB), provides insights into the motivations and behaviors of students when choosing educational programs. The study used a structured questionnaire from 300 students enrolled in management courses in the Gampaha District of Sri Lanka. The questionnaire captures demographic information and measures attitudes, perceived behavioral control, subjective norms, and intentions to enroll. Findings revealed that students' attitudes towards higher education institutions and their perceived control over the enrollment process are significant predictors of their intentions to join an institution. Specifically, 75% of respondents indicated that a positive attitude towards the quality of education and career prospects highly motivated their enrollment intentions. Similarly, 68% of students highlighted that perceived behavioral control, which includes factors like financial ability and access to necessary resources, played a crucial role in shaping their enrollment intentions. Interestingly, subjective norms, or the perceived social pressure from family, friends, and peers, were found to have a negligible impact, with only 30% of students considering it a significant factor in their decision-making process. The implications of these findings are significant for educational institutions aiming to attract and retain students. Institutions should prioritize enhancing service quality and creating a supportive learning environment to foster positive attitudes among potential students. Marketing strategies should be tailored to highlight the strengths and unique offerings of the institution, addressing both the educational and career benefits. Institutions should focus on reducing barriers that affect students' perceived control over their enrollment decisions. Understanding students' perspectives and enrollment intentions allows institutions to better meet the needs and expectations of their target audience. By focusing on the factors that genuinely influence students' choices, higher education institutions can develop more effective recruitment and retention strategies. This approach not only helps to attract a diverse student body but also ensures long-term success by building a loyal and satisfied student population. In conclusion, this study underscores the importance of understanding and addressing the factors that drive students' enrollment intentions. By leveraging the insights gained from analyzing students' attitudes and perceived behavioral control, modern higher education institutions can enhance their appeal and competitiveness in the educational market. The findings suggest that a student-centered approach, which prioritizes quality education and supports students' needs, is key to attracting and retaining students in today's dynamic educational environment.

**Keywords:** Behavioral Control, Higher Education, Learning Environment, Planned Behavior, Students' Attitudes.

## **Enhancing Elementary ESL Learners' Writing Skills Through Translanguaging: A Mixed-Methods Study**

**Imbulpe, Y.S.<sup>1\*</sup>**

*<sup>1</sup>Department of Education, Faculty of Social Sciences and Humanities, Lincoln University College, Malaysia.*

*[yasaminiswarnakanthi@gmail.com](mailto:yasaminiswarnakanthi@gmail.com)*

This study investigates the impact of integrating Translanguaging as a classroom technique on writing skills and vocabulary knowledge among elementary English as a Second Language (ESL) learners in Sri Lanka. Translanguaging is a pedagogical approach where the native language is used for input to produce output in the second language. A mixed-methods approach was employed, combining quantitative and qualitative data to provide a comprehensive understanding of the technique's effectiveness. Quantitative data were gathered from a sample of 30 Grade 5 students at Rathnapura Tamil Primary Vidyalaya, using a quasi-experimental design to measure their language proficiency before and after the implementation of Translanguaging techniques. The analysis revealed a significant improvement in the students' language skills, as indicated by the difference between the pre-test and post-test means. This improvement underscores the potential of Translanguaging to enhance writing skills and expand vocabulary knowledge among elementary learners. Qualitative insights were obtained from 58 ESL teachers within the Rathnapura Education Zone via an online questionnaire. The findings revealed that the teachers found Translanguaging not only helpful for students to understand and retain new vocabulary better but also to facilitate a more engaging and inclusive classroom environment. The intentional incorporation of Translanguaging into language teaching practices creates a learning environment that caters to diverse learner needs. This technique allows for fluid movement between languages, making the learning process more natural and less intimidating for students. By recognizing and valuing students' native languages, educators can build a bridge to English proficiency, making learning more accessible and effective. However, the successful implementation of Translanguaging requires more than just an understanding of its theoretical benefits. The study highlights the importance of professional development opportunities for educators. Such training can enhance teachers' awareness and understanding of Translanguaging as a pedagogical approach, empowering them to make informed decisions about how to incorporate it into their teaching strategies. When teachers are equipped with the right knowledge and skills, they can create more dynamic and effective learning environments. The study also contributes to the broader discourse on the relationship between Translanguaging and second language proficiency. It offers valuable insights for ESL and bilingual educators and policymakers, emphasizing the need for educational frameworks that support innovative teaching methods, and an understanding of how multilingual approaches can enrich the learning experiences of ESL students.

**Keywords:** Translanguaging, Vocabulary, Writing Skills, Elementary ESL Learners, Language proficiency



## **Role of Mentoring in Sri Lankan Schools and its Contribution in Grooming English as a Second Language Pre-Service Teachers; What Needs to be Done?**

***Sooriyampola, M.<sup>1\*</sup>, Kodituwakku, G.<sup>1</sup>, Agarwal, N.<sup>1</sup>***

*<sup>1</sup>Mahaweli National College of Education, Polgolla, Kandy, Sri Lanka.*

*[mayurisooriyampola@gmail.com](mailto:mayurisooriyampola@gmail.com)*

Pre-service teachers enter National Colleges of Education based on their Advanced Level Z - score and have limited or no teaching experience. These pre-service teachers move into new teaching contexts with a high level of stress and uncertainty, as they begin to confront challenges with lack of instructional routines, procedures, skills and techniques that are required for the specific contexts of teaching. There is a wide gap that exists between the theory they gain at colleges and teaching realities. To manage this high level of stress and to cope with teaching realities, they need constant support and guidance. Thirty (30) English pre-service teachers who are presently in internship practice at state schools, were used to gather data using a questionnaire and interviews were carried out for clarifications. About 05 mentors were interviewed to find out what they know of their mentoring role. A study carried out in 2023 by the same researcher about the perspectives of teacher educators of mentoring too was used as data along with the documents maintained by the pre-service teachers for analysis. Qualitative analysis of data was carried out; triangulation of data was used to maintain validity of the findings. Observation notes, questionnaires and interviews, with documents of pre-service teachers were used to compare to reach findings. These were again compared with the objectives of the study. All these data were thematically analyzed and a coding system was used for that, to find out the current status of mentoring process available in Sri Lankan state schools. Findings showed none of the parties were satisfied with the current mentoring process and they have a vague idea about what mentoring is. It was also found that there is no systematic mentoring system available in Sri Lankan state schools. It also looked at what needs to be done to address the needs of mentees, mentors and teacher educators to bring about an effective mentoring system. This study recommends, provide necessary training and update the mentors frequently, select the mentors carefully and systematically, provide remuneration for their service and the principals and senior teachers in schools must be educated on the importance and nature of mentoring. It also suggests, further studies be carried out to find out more details about the mentoring system available with the other subject fields, investigate successful mentoring systems in other contexts and adapt those characteristics, whatever suits the context and form a standard mentoring system that will guide the future teachers to become effective teaching professionals.

**Key words:** Pre-Service, Mentoring, English as a Second Language

## **Improving Pupils' Reading Difficulties Using Phonic and Syllabic Methods**

***Saleem, I.B.<sup>1\*</sup>, Kasturiarachchi, C.***

*Department of Education, Faculty of Social Science, Arts and Humanities, Lincoln University  
College, Malaysia.*

*[Iramsalim1@hotmail.com](mailto:Iramsalim1@hotmail.com), [chandana@lincoln.edu.lk](mailto:chandana@lincoln.edu.lk)*

Reading is a critical skill foundational to academic success and lifelong learning, yet many young learners need help to achieve proficiency. These struggles can significantly impact their overall educational experience, leading to broader challenges in their academic and personal lives. This study investigates the effectiveness of two widely recognized instructional methods—the phonic and syllabic approaches—in improving reading difficulties among early learners. The research was conducted with 100 pupils aged 6-8, all identified as having reading difficulties. The students were randomly divided into two groups: one group received instruction through the phonic method, while the other was taught using the syllabic method. The intervention spanned 12 weeks, with both groups receiving daily lessons tailored to their respective instructional strategies. The phonic method emphasizes the relationship between sounds (phonemes) and their corresponding letters or groups of letters (graphemes). This approach aids pupils in decoding new words by sounding them out, reinforcing the connection between spoken and written language. It is widely regarded as a systematic approach to early reading instruction, with research, such as that by Ehri (2014), highlighting its significant impact on improving reading skills among beginning readers. In contrast, the syllabic method breaks down words into syllables, each representing a pronunciation unit. This method simplifies the reading process by concentrating on larger units of sound than phonemes, which can be particularly beneficial for pupils who struggle with phonemic awareness. The effectiveness of these methods was evaluated using a series of pre-and post-intervention assessments, which measured improvements in three key areas: reading accuracy, reading fluency, and reading comprehension. The results indicated that both instructional methods significantly improved reading skills among the pupils. Specifically, the group instructed through the phonic method demonstrated a 25 % improvement in reading accuracy, a 20 % increase in reading fluency, and an 18% enhancement in reading comprehension. The group taught using the syllabic method exhibited a 22 % improvement in reading accuracy, a 19% increase in reading fluency, and a 20 % enhancement in reading comprehension. These findings suggest that while both methods are effective, each offers unique advantages depending on the specific aspect of reading development being targeted. The phonic method is particularly beneficial for improving reading accuracy and fluency, whereas the syllabic method may offer slightly better outcomes in reading comprehension. This suggests that a combined or balanced approach, integrating both methods, could provide the most comprehensive benefits for young learners. The study recommends that educators and policymakers consider incorporating phonic and syllabic instructional methods into early childhood education curricula to address reading difficulties effectively. The research also highlights the need for further studies to explore these methods' long-term impacts and investigate how they can be most effectively combined to optimize reading instruction for young learners.

**Keywords:** Reading Difficulties, Phonic Method, Syllabic Method, Early Childhood Education, Reading Proficiency, Literacy Development

## **The Impact of Bilingual Education on Language Development in Preschool Children: A Case Study of English and Sinhala Medium Preschools in Matale**

***Kulathunga, J.K<sup>1</sup>, Kasturiarachchi, C.<sup>2</sup>***

*<sup>1</sup>Department of Social Science Arts and Humanities, Lincoln University College, Malaysia*

*<sup>2</sup>Department of Postgraduate Studies, Lincoln University College, Malaysia.*

*[kaushikulathunga87@gmail.com](mailto:kaushikulathunga87@gmail.com), [chandana@lincoln.edu.lk](mailto:chandana@lincoln.edu.lk)*

This study investigates the impact of bilingual education on language development in preschool children, focusing on three preschools within the Galewela Divisional Secretariat area, Sri Lanka. Using the onion research model and a case study design, the research explores how bilingual education influences linguistic proficiency in young learners. Data collection methods include structured observations, teacher interviews, and standardized language proficiency assessments, integrating both qualitative and quantitative approaches. Structured observations were conducted in classroom settings to document children's use of English and Sinhala during various activities. The study captured data from 15 observation sessions, noting that 80% of the children frequently switched between languages, with 65 % demonstrating contextually appropriate language use during bilingual tasks. Teacher interviews with 6 educators provided insights into instructional strategies, challenges in bilingual education, and the perceived impact on language development. Standardized assessments were administered to 45 children, evaluating vocabulary, syntax, and overall language abilities in both languages. The assessments revealed that 70 % of the children had a vocabulary range above the expected level for their age group in both languages. Preliminary findings indicate that children in bilingual education settings exhibit greater linguistic flexibility and a richer vocabulary in both languages compared to their monolingual counterparts. Specifically, 75 % of the children demonstrated an ability to code-switch effectively, using contextually appropriate language, which suggests enhanced cognitive and linguistic adaptability. During free play, 60 % of the children mixed languages to communicate more effectively with peers, indicating a high level of linguistic adaptability. The observations revealed that bilingual children were more engaged and participatory in classroom activities, often utilizing both languages to interact with peers and teachers, thereby enhancing their communicative competence. Teacher interviews highlighted several strategies employed to support bilingual language development, such as the use of visual aids, bilingual storybooks, and interactive activities that encourage the use of both languages. However, 80 % of the teachers reported challenges, including balancing language instruction and addressing varying levels of language proficiency among students. The thematic analysis of interviews suggested that while teachers recognize the benefits of bilingual education, they require additional training and resources to implement effective bilingual teaching practices. This research underscores the significance of bilingual education in promoting comprehensive language development in early childhood. It advocates for professional development programs tailored to equip teachers with effective bilingual pedagogical strategies and calls for policy support to ensure bilingual education programs are well-resourced and accessible. Based on the findings, the study recommends the broader adoption of child-centered, bilingual pedagogical approaches and emphasizes the need for ongoing professional development for teachers to enhance bilingual education effectiveness.

**Keywords:** Bilingual Education, Language Development, Matale, Preschool Children.

## **Challenges and Barriers for Improving Student Numerical Literacy in Early Childhood Education Centers: A Case Study from Colombo Pre Schools, Sri Lanka**

***Liyana Palliyage, S.T.<sup>1\*</sup>, Kasturiarachchi, C.<sup>2</sup>***

*<sup>1</sup>Department of Education, Faculty of Social Science, Arts and Humanities, Lincoln University College, Malaysia.*

*<sup>2</sup>Department of Postgraduate Studies, Lincoln University College, Malaysia.  
[shakunitharika@gmail.com](mailto:shakunitharika@gmail.com), [chandana@lincoln.edu.lk](mailto:chandana@lincoln.edu.lk)*

Early childhood is a crucial period that lays the groundwork for personality, health, and academic success by molding a well-functioning adult in the future. Developing fundamental numerical literacy skills during early childhood education plays a significant role in academic achievement and lifelong learning. Reports from the National Centre for Education Statistics (NCES) of the United States indicate that children who possess strong numeracy skills in early childhood are likelier to perform better in mathematics and reading throughout their school years, demonstrating higher literacy and thinking skills. Conversely, children who struggle with numerical literacy often face considerable academic difficulties and may develop an aversion to learning. The purpose of this study is to identify the challenges and barriers to numerical literacy faced by early childhood educators and students aged three to five in the Colombo district, Sri Lanka. The research was conducted under an abductive approach and a pragmatic research philosophy, combining both quantitative and qualitative methods to facilitate a comprehensive analysis. A cross-sectional design was chosen to facilitate a broader investigation within the one-month time frame. Further, to ensure the accuracy and validity of the data, primary data were collected through questionnaires and interviews, and secondary data were supplemented with empirical studies. Thematic analysis was used to identify common patterns and themes in qualitative data, while descriptive statistics were used to summarize the key findings and analyze quantitative data. To minimize bias and improve the generalizability of the results, a sample of five early childhood educators was randomly selected from a population of twenty-five educators across five early childhood education centers in Colombo. Further, the research adhered to the ethical safeguarding of the privacy of participants and respecting intellectual property rights. The preliminary findings of the study reveal that inadequate training for early childhood educators in effective numeracy teaching methodologies, large-sized classes exceeding twenty learners, and insufficient parental involvement and support at home as the main challenges. The findings also emphasize the significance of socioeconomic factors, access to quality learning resources for low-income families, and the societal perspective on numeracy. The lack of a structured preschool curriculum often leads to rote memorization of numerical concepts over comprehension and critical thinking. Therefore, to address these challenges, the study recommends well-structured numeracy-focused teacher training programs, introducing culturally appropriate interactive instructional materials, and conducting awareness programs to emphasize the significance of numerical literacy and encourage parental involvement and support. By effectively addressing these challenges and obstacles, early childhood educators, parents, and other interested parties can guarantee that every child possesses the fundamental numeracy skills required for both academic success and lifetime learning.

**Keywords:** Barriers, Challenges, Early Childhood Education, Numerical Literacy

## **English as a Second Language: The Utilization of Visual Teaching and Learning Aids in Teaching Phonics in City Preschools, Sri Lanka.**

***Vithanage.C.<sup>1\*</sup>, Kasturi Arachchi, C.<sup>2</sup>***

*<sup>1</sup>Faculty of Social Sciences, Lincoln University College, Malaysia.*

*<sup>2</sup>Department of postgraduate Studies, Lincoln University College, Malaysia  
[chamipavithra1@gmail.com](mailto:chamipavithra1@gmail.com), [chandana@lincoln.edu.lk](mailto:chandana@lincoln.edu.lk)*

This study investigated the effectiveness of visual aids in supporting the teaching of English phonics in preschools located within Waragoda City, Kelaniya District, Sri Lanka. Employing a mixed-methods approach, the research delved into current practices, potential challenges, and the impact of visual aids on student learning. Quantitative data collected through questionnaires administered to preschool teachers in Waragoda City explored the frequency and type of visual aids used specifically for teaching phonics sounds. The findings revealed that teachers reported frequent use of some visual aids, with a mean score between 2.50 and 3.49 for items like letter charts and picture flashcards. This suggests that these traditional aids are commonly integrated into phonics instruction. The data also identified a gap in the use of technology-based visual aids. The same respondents rated items related to movies, videos, and presentations rarely used, with an average mean score between 1.50 and 2.49. This underutilization of potentially engaging visuals like multimedia presentations could hinder student interest and language skill development. Observations were held to collect qualitative data, and the classroom observations documented how teachers integrated visual aids into their phonics lessons. The research paid close attention to the specific types of aids used, the methods of presentation, and student engagement with the materials. These observations confirmed the quantitative data, highlighting a clear correlation between effective visual aid use and positive student engagement. When teachers incorporated visuals appropriately, students displayed enthusiastic participation, heightened attention, and improved comprehension. Conversely, lessons lacking engaging visuals resulted in less active student involvement. Semi-structured interviews with preschool administrators in Waragoda City yielded mixed results regarding resource allocation for visual aids. While some administrators reported allocating a reasonable number of teaching periods (under 23 per week) and setting aside yearly funds for purchasing visual aids, others fell short in these areas. This inconsistency in resource allocation could limit teachers' ability to effectively utilize visual aids in their phonics instruction. Based on the research findings, the study proposes specific recommendations for policy changes, resource allocation, and professional development initiatives. The research advocates for increased investment in technology resources like projectors, laptops, educational software specifically designed for phonics instruction and arrange teacher training on integrating modern media. The research also suggests partnering with parents to use visual aids at home. Equipping parents with resources to create or use simple aids can reinforce phonics learning during playtime and daily interactions. This research signifies improving phonics instruction by highlighting current practices, pinpointing areas for growth, and proposing solutions. By effectively using a wider range of visual aids, both traditional and technology-based, preschools can equip young learners with a strong foundation in phonics, paving the way for future success in English language acquisition.

**Key words:** Phonics Instruction, Visual Aids, Preschool Education, English Language Learning

## **Exploring the Role of Artificial Intelligence (AI) Technology in Sri Lankan School Education for Sustainable Development**

***Illangasingha, I.P.D.<sup>1\*</sup>***

*<sup>1</sup>Department of Education, Faculty of Arts, University of Peradeniya.*

*[A19276@arts.pdn.ac.k](mailto:A19276@arts.pdn.ac.k)*

Sustainable development, defined as meeting present needs without compromising the ability of future generations to meet their own needs, represents a critical global imperative. In Sri Lanka, the school education sector faces significant challenges in effectively contributing to this journey. This research seeks to address these gaps by proposing the integration of AI technology into school education across several diverse institutions in the Kandy district. Through meticulous observation of the learning and teaching processes at these schools, several crucial issues have been identified. There is widespread unawareness among both students and educators regarding AI technology, compounded by prevalent misconceptions among parents about its potential negative impacts. Economic disparities and inadequate access to technical resources further hinder the effective integration and utilization of AI in education. To address these challenges, the research recommends a multifaceted approach. Firstly, comprehensive educational programs are proposed to enhance AI literacy among students, teachers, and parents alike. These initiatives aim not only to demystify AI but also to highlight its practical applications in everyday life and its critical role in preparing students for future challenges. Practical workshops and curriculum enhancements will ensure that AI concepts are integrated seamlessly into existing educational frameworks. Additionally, efforts to dispel societal myths and misconceptions surrounding AI are deemed essential. By fostering a more accurate understanding of AI's capabilities and limitations, these initiatives seek to promote informed decision-making and responsible usage of technology among all stakeholders. Collaborative platforms involving educators, policymakers, and community leaders will be instrumental in driving these awareness campaigns forward. Furthermore, the research underscores the importance of addressing economic barriers by advocating for increased accessibility to AI tools and resources in schools, particularly in underserved communities. Initiatives such as subsidized access to AI hardware and software and partnerships with technology firms could ensure that all schools, regardless of their economic status, can benefit from AI advancements. By ensuring equitable access to technological advancements, educational institutions can better harness the transformative potential of AI in enhancing learning outcomes and nurturing sustainable development competencies among students. Ultimately, by leveraging AI technology effectively within the education sector, this research aims to significantly contribute to the broader sustainable development agenda in Sri Lanka. Through targeted interventions and strategic educational initiatives, the path toward a more inclusive, technologically proficient, and sustainable future for all can be paved. Ensuring that the benefits of AI innovation are equitably distributed and responsibly utilized across generations will be crucial in achieving sustainable development goals both locally and globally. In conclusion, integrating AI into Sri Lanka's school education system represents not only a technological advancement but also a pathway to fostering a generation of informed, adaptable, and sustainable-minded citizens.

**Keywords:** Sustainable Development, School Education, AI Technology, Technological Tools, Research.

## **Utilizing Poetry for Vocabulary Acquisition in English as a Second Language (ESL) Classrooms: An Empirical Study**

**Jayawardena, H.M.C.P.<sup>1\*</sup>**

*<sup>1</sup>Department of English Language Teaching, Faculty of Humanities, University of Kelaniya,  
Sri Lanka.*

*[hmcjayawardena@gmail.com](mailto:hmcjayawardena@gmail.com)*

Effective English as a Second Language (ESL) instructions aim to create a comprehensive language learning experience for students. This experience validates the development of all four language skills: listening, speaking, reading, and writing. However, in the field of language learning vocabulary acquisition plays a pivotal role in achieving fluency and comprehension across the four skills. A strong vocabulary foundation allows ESL learners to grasp grammatical structures, understand spoken and written language, and express themselves with clarity. Amongst the language learning methodologies, traditional methods often focus on rote memorization and decontextualized vocabulary lists. However, research suggests that engaging and meaningful approaches that incorporate technology and advanced collaborative activities can significantly enhance learning outcomes. Poetry, with its rich use of language and imagery, has emerged as a promising medium for ESL instruction as a traditional measure of language teaching. Though poetry has been utilised within the available curriculum for comprehension purposes the focus on vocabulary acquisition is less or limited. This study intends to analyse the effectiveness of the usage of poetry as a method of vocabulary acquisition against traditional methods in the context of English as a Second Language (ESL) classrooms. To conduct this study a sample of 50 Grade 7 students was divided into two groups: an experiment group exposed to modern poetry and a control group using traditional vocabulary learning methods. Random sampling was used to select two classes out of eight. Both groups received the same learning objectives, content coverage, language exposure, and assessment criteria over one month. Pre and post-tests and a summative assessment were conducted in similar environments to gauge vocabulary acquisition. Both pre and post tests were the same while the experimental group engaged with activities utilizing modern poems. The lessons included activities targeted on comprehension, synonyms and poetry and story writing via reading as the receptive strategy. The control group employed traditional methods like rote memorization and sentence building exercises with lists of synonyms and antonyms and poor usage of comprehension passages. The study revealed significant differences between the two groups. Students exposed to modern poetry demonstrated a greater improvement in vocabulary acquisition compared to the control group. The controlled group was performing in the immediate assessments yet failed to perform better than the experimental group at the summative assessments. This suggests that modern poetry, with its focus on imagery, figurative language, and engaging content, can be a more effective tool for vocabulary learning in ESL contexts. The study highlights the potential of utilizing modern poetry, carefully selected for word choice and proficiency level, as a medium for vocabulary acquisition in ESL classrooms and offers a more engaging and effective alternative to traditional methods, promoting positive learning outcomes for junior secondary students.

**Keywords:** Vocabulary Acquisition, Poetry, Junior Secondary Students, English as a Second Language



## **Technological Leadership Challenges Faced by Principals in Enhancing the Use of Technology in the Teaching-Learning Process**

***Nireskumar, M.<sup>1\*</sup>***

*<sup>1</sup>Jaffna National College of Education, Kopay, Sri Lanka.*

*[mnireshkumar@yahoo.com](mailto:mnireshkumar@yahoo.com)*

This research focuses on identifying the technological leadership challenges faced by principals in enhancing the use of technology in the teaching-learning process, specifically in the Nallur division of the Jaffna zone in the Jaffna district. The primary aim is to identify these challenges and the barriers contributing to them, as well as uncovering the reasons behind these obstacles. The study concludes with recommendations and suggestions for effectively addressing these challenges. In recent years, integrating technology into education has been a significant focus of reform efforts worldwide. Various studies highlight the potential of technology to enhance teaching and learning. However, successful implementation largely depends on the leadership provided by school principals, who play a crucial role in fostering an environment that supports effective technology use, including providing resources, professional development for teachers, and creating a supportive school culture. A mixed-method research design, combining qualitative and quantitative approaches, was used in this study. The population consists of 22 principals from 1AB and 1C schools in the Nallur Division, all of whom were selected as the sample. Data were collected through questionnaires and interviews with the principals and analyzed using simple statistical methods such as tabulation, percentages, frequency, and item analysis. This approach provided a comprehensive understanding of the challenges faced by the principals and enriched the quantitative data with qualitative insights. The findings revealed that principals face challenges such as a lack of resources, inadequate classroom environments, weak supervision arrangements, and issues related to time management. These findings align with previous research indicating that lack of resources and support are common barriers to technology integration in schools. The causes of these challenges include insufficient funding, lack of technical support, and the need for more robust professional development for teachers and principals alike. To address these challenges, several strategies were suggested. These include seek financial assistance from the school's alumni association and local community leaders, form a technical team within the school to provide training to teachers and repair technological devices, form a supervisory team within the school, provide supervision-related training for principals, prepare and implementing special timetables for using technological facilities. These recommendations are supported by literature emphasizing the importance of financial investment, professional development, and supportive leadership in successful technology integration in education. Addressing the identified challenges and implementing the suggested strategies, it is anticipated that the use of technology in the teaching-learning process in the Nallur division can be significantly improved. In conclusion, the critical role of principals in overcoming technological leadership challenges in schools. By addressing barriers related to resources, environment, supervision, and time management, and implementing targeted strategies, principals can foster a more conducive environment for technology integration.

**Keywords:** Technological Leadership, Teaching - Learning Process



## **The Impact of Play-Based Learning on Cognitive and Social Development in Early Childhood**

***Shariffdeen, H.Z.<sup>1\*</sup>, Kasturi Arachchi, C.<sup>2</sup>***

*<sup>1</sup>Department of Education, Faculty of Social Science, Arts and Humanities, Lincoln University College, Malaysia.*

*<sup>2</sup>Department of Postgraduate Studies, Lincoln University College, Malaysia.*

*[zainab7113deen@gmail.com](mailto:zainab7113deen@gmail.com), [chandana@lincoln.edu.lk](mailto:chandana@lincoln.edu.lk)*

This study employs a qualitative research design to explore the impact of play-based learning on cognitive and social development in early infancy, especially in the preschool setting. A qualitative approach was chosen due to it focusing on understanding children's complex experiences and developmental progress during play-based activities. Play-based learning, a strategy that relies on play as the primary means of learning, has grown in popularity due to its compatibility with children's natural learning processes. The goal of this research is to better understand how scheduled and unstructured play affect developmental outcomes in preschool children aged 3 to 5 years. The study was conducted on a group of preschool children from Finnish Pre School in Colombo. The sample included children aged 3 – 5 years, drawn from a diverse range of socioeconomic backgrounds with 18 children who regularly use a play-based curriculum. Data was collected through direct observations, interviews with educators, and examination of curriculum materials and analyzed using thematic analysis and ensured reliability through member checking and triangulation. Thematic analysis involved initial coding, identification of themes, and refining for coherence. The study focused on children's relationships, play patterns, and developmental milestones. Interviews revealed the teacher's perspectives on play-based learning's impact on children's development. Document analysis provided contextual awareness. Play-based learning enhances cognitive and social development in preschool children. Children perform complex tasks, while memory retention is evident in sequential games and role-play scenarios, where they use complex vocabulary and narrative skills. Play-based learning assists children in developing crucial social skills such as sharing, empathy, and emotional regulation. During group play activities, children displayed improved collaboration, turn-taking, and conflict resolution abilities. For example, during pretend play settings like "playing house" or "store" children negotiated roles and responsibilities, demonstrating increased social negotiation skills. Emotional control was observed when children dealt with disappointment and shared resources, exhibiting a higher ability to wait for gratification and properly express emotions. The study findings emphasize the significance of play-based learning as a crucial component of early childhood education. The qualitative findings show that play-based learning environments enable children to engage in meaningful, context-rich interactions that enhance holistic development. The study suggests play-based learning should be a crucial part of early childhood education, encompassing free, guided, and structured activities. This study concludes that play-based learning promotes cognitive and social development in early childhood and supports the integration into early childhood curriculum.

**Keywords:** Cognitive Development, Early Childhood Education, Play-Based Learning, Social Development

## **The Effectiveness of Providing Teachers' Feedback on Students Academic Performances and Behaviors**

***Nithya, S.<sup>1\*</sup>, Kasturi Arachchi, C.<sup>2</sup>***

*<sup>1</sup>Department of Education, Faculty of Social Science, Arts and Humanities, Lincoln University College, Malaysia.*

*<sup>2</sup>Department of Postgraduate Studies, Lincoln University College, Malaysia.  
[Kershtkvn1984@gmail.com](mailto:Kershtkvn1984@gmail.com), [chandana@lincoln.edu.lk](mailto:chandana@lincoln.edu.lk)*

Feedback plays a crucial role in enhancing students' conduct and achievements within the school setting. Students gain advantages from receiving feedback because it allows them to contemplate their learning journey and make crucial enhancements as they move forward. While studies have examined the effects of teacher feedback on general student populations, there is lack of research specifically targeting groups such as students with Special Educational Needs (SEN) or varying cultural backgrounds. The process included a qualitative approach, conducting interviews and administering structured questionnaires to gather information on evaluating the impact of feedback in the classroom with 6-10 teachers from both primary and secondary levels as respondents. The research employed thematic analysis to evaluate how feedback is valuable and effective as a technique. The research indicates that offering students instant feedback on their assignments is more successful than giving feedback on a weekly or monthly schedule. Teachers have personalized methods and strategies to cater to the unique requirements and choices of each child and feedback can vary such as spoken, written, and digital. Certain teachers think that feedback is moderately beneficial, whereas the majority believe that verbal remarks could improve their performance and are very effective during their learning process. Furthermore, teachers report facing challenges when providing students with feedback, a factor that may directly affect students. Lack of time for individual students, not enough tools and resources, and ineffective feedback strategies all hinder the feedback process. It is essential to ensure that feedback is given evenly to all students to prevent certain individuals from showing unwarranted pride when evaluating their peers. Teachers are wary of feedback due to negative student reactions and lack of improvement in the past. On the other hand, most students have demonstrated progress and are still getting better due to receiving feedback. Additional research discovered new methods like using a cookie jar and offering incentives such as stars and smiley faces can boost the engagement of younger individuals in activities. Teachers should undergo appropriate training to ensure they provide effective feedback and stay current on new strategies and techniques. They need to master the skill of giving helpful feedback that uplifts students rather than bringing them down and remain optimistic throughout the entire experience. Moreover, educators must assist students in developing self-assurance and skills to comprehend feedback efficiently and apply it to their academic endeavors. In conclusion, the study highlights the necessity to establish the true impact of feedback on students' specific requirements which is thought to motivate educators and learners to enhance the learning atmosphere by fostering young intellects.

**Key words:** Effectiveness of Feedback, Students' Improvements, Teachers' Feedback

## **The Effect of Gender on Second Language Acquisition**

***Narasinghe, N.M.M.D<sup>1\*</sup>, Hettiarachchi, R.C.K.<sup>1</sup>***

*<sup>1</sup>Department of Linguistics, Faculty of Graduate Studies, University of Kelaniya, Sri Lanka.  
manukadn@gmail.com, ranck2002@gmail.com*

According to numerous earlier research, females appear to be more successful than males at learning a second language. Most studies linking gender differences in second language acquisition and learning strategies have concentrated on differences in cognitive styles through which that were concluded that females perform better than males. Females tend to show greater integrative motivation and more positive attitudes to a second language and use a wider range of learning strategies. Gender has a variety of effects on language usage and acquisition, including how learners are viewed and how they view themselves in language contexts. Gender influences language acquisition in terms of language use, competency, and learning preferences, according to previous research. The proposed research aimed to investigate the Effects of Gender on Second Language acquisition. The four research questions addressed in this research were finding the availability of a gap between males and females in Second Language Acquisition, the differences in learning strategies and learning styles of second Language between males and females, the capacity difference in males and females in learning a second language and finally the differences of attitudes between males and females towards learning a Second Language. The above research questions were targeted through the questions that were in the two given questionnaires as a survey. Samples for the research were taken under two categories as teachers and students. Sample size was taken as 30 under each category. The two samples were given two separate questionnaires via Google forms. The data gained through two questionnaires were presented using pie charts and bar graphs and were analyzed using both quantitative and qualitative methods. The findings from this research proved that there is a considerable effect of gender on Second Language Acquisition. The most obvious findings that emerged from this research were that the female students perform better during the teaching and learning process of English as a second language and the female students considerably have a higher capacity in learning than the male students. Male students mainly focused in doing a better job with the use of English and the female students focused on doing higher studies with the use of English. However, the current research has only examined the opinions of the Sinhala medium students and female teachers. This research can be expanded by involving students of all the nationalities and teachers of both genders. Conclusively, it is also recommended that future research can be designed by changing the data collecting instruments used in the methodology of the current study.

**Keywords** – Attitudes, Capacity, Effect, Gender, Learning Styles, Second Language Acquisition

## **Effectiveness of Learner Centered Motivational Strategies on English Language Proficiency**

**Hemachandra, K.L.C.S.<sup>1\*</sup>**

*<sup>1</sup>Department of Education, Faculty of Social Science Arts and Humanities, Lincoln University College, Malaysia.*

*[chathusubhashini222@gmail.com](mailto:chathusubhashini222@gmail.com)*

In English as a Second Language (ESL) context, students' perceptions of teaching strategies have a direct impact on their motivation towards their language learning. According to previous research, Learner-centered motivational strategies remain underutilized in ESL classrooms, especially in secondary classes due to various reasons. A steady weakening in productive skill competence has been recorded among lower secondary learners in Division 1 of Nuwaraeliya Educational zone. This was identified at the Third term test English Marks analysis done during 2022 by ZEO Nuwaraeliya. Based on the term tests evaluations conducted for students, it was revealed that the students' performance on productive skills is lower compared to receptive skills. Further, the Ordinary Level Examination result enhancing teacher program conducted by Nuwaraeliya RESC recorded that the secondary students' enthusiasm to attempt answering questions based on productive skills is also low. The study focused on investigating the effectiveness of Learner-Centered motivational strategies on English language proficiency in language classrooms with special attention to English language productive skills. The study involved thirty-five participants of the lower secondary learners of Vidyachakra Vidyalaya. A mixed methodology incorporating a quasi-experimental and qualitative design carried out as a "before-after" investigation without a control group, since it was considered unethical to withhold the intervention from one group of students because they would then be deprived of a potentially helpful treatment. Accordingly, only one test group was used for both the observation and the experiment. Afterwards, the instructional interventions commenced and lasted for twelve weeks. Motivational strategies used as the interventions were based on ten macro strategies. Additionally, an observational checklist based on a Likert scale was used to observe students' behavior mainly in two phases. Observations captured aspects such as involvement, engagement, and response to the motivating tactics. A pretest was administered before the intervention, and they were subjected to a twelve-week teaching program using selected motivational strategies. After the intervention, a posttest was administered to check the effect of the motivational strategies. The results of pretest and the post-test scores were analyzed through a paired sample t-test using SPSS. The results have indicated that the learner centered motivational strategies implemented throughout the study have positively impacted language proficiency. This improvement is highlighted by the consistently higher correlation coefficients observed in the post-test, indicating a stronger alignment between language proficiency and motivational strategies following the intervention. The observational study revealed many changes in the student behavior from the initial to the last stages. During the initial phase, many students were not attentive and did not take the learning seriously. However, with the use of strategies, all learners became attentive and actively listened to. Based on the findings it is suggested to integrate learner centered motivational strategies in a classroom, maximize learner participation and boost confidence of students to achieve learning outcomes.

**Keywords:** English as a Foreign Language, Motivation, Motivational Strategies.

## **Mental Well-Being of Sri Lankan Teaching Assistants Working in Special Education Schools: A Case Study**

***Kasturi Arachchi, C.J.H.<sup>1</sup>, Kasturi Arachchi, G.G.O.<sup>1\*</sup>***

*<sup>1</sup>Business School, Sri Lanka Institute of Information Technology, Sri Lanka.*

*chathujhan@gmail.com, geesarakasturiarachchi@gmail.com*

Teaching Assistants (TAs) in special education schools in Sri Lanka play a pivotal role in supporting the learning and development of children with special educational needs. Their responsibilities vary based on individual student needs and specific school requirements, and their contributions are highly valued by schools and educators. However, the mental well-being of TAs is often influenced by several factors. This research study explores the mental well-being of TAs in special education schools in Sri Lanka, aiming to understand the unique challenges they face. The study's specific objectives include examining the work environment of TAs, investigating factors influencing their mental well-being, identifying the challenges they encounter, and recognizing the strategies they use to cope with these challenges. A qualitative research methodology was employed, utilizing the interpretive paradigm to gain an in-depth understanding of the phenomenon. The study adopted a case study research strategy, with semi-structured interviews and questionnaires administered to collect data. The sample selected, comprising five TAs working in special education schools. The findings reveal several key insights into the mental well-being of TAs. Many respondents expressed dissatisfaction with their work-life balance, underscoring the need to address this issue within the organization. TAs face significant challenges in managing their workload, highlighting the necessity for workload management strategies. Although there is generally a positive perception of colleague support, there is a need for improved training to help TAs deal with the challenges in their roles. The study also found a lack of adequate opportunities for professional growth, despite many TAs finding their roles fulfilling and conducive to leveraging their capabilities. A notable number of respondents reported a lack of a sense of purpose in their jobs, indicating the need for enhanced mental health support services to address these concerns. The study emphasizes the importance of understanding and addressing factors that contribute to the perceived value and appreciation within the student-teacher dynamic. Most respondents reported a healthy balance between work and personal life, yet fostering a supportive environment and raising awareness of available resources remains crucial to ensuring all individuals feel comfortable seeking help when necessary. The relationships between TAs and their supervisors also varied widely, suggesting a need for training programs to enhance supervisors' understanding of the unique challenges faced by TAs. This can contribute to creating a more inclusive and supportive work environment for everyone involved. In conclusion, this study highlights the critical importance of addressing the mental well-being of TAs in special education schools in Sri Lanka. By improving work-life balance, workload management, professional growth opportunities, and mental health support, schools can better support their TAs. Additionally, fostering strong relationships between TAs and their supervisors through targeted training can further enhance the overall work environment, ensuring that TAs feel valued and supported in their essential roles.

**Key Words:** Mental Well-Being, Teaching Assistants, Special Education, Work Environment, Professional Growth

## **Instructional Leadership of Principals and Professional Development of Teachers: Special Reference to Schools in the Colombo Education Zone**

***C.J.H. Kasturi Arachchi<sup>1\*</sup>, G.G.O. Kasturi Arachchi<sup>1</sup>, C. Kasturi Arachchi<sup>2</sup>***

*<sup>1</sup>Business School, Sri Lanka Institute of Information Technology, Sri Lanka.*

*<sup>2</sup>Dept. of Postgraduate Studies, Lincoln University, Sri Lanka.*

*chathujhan@gmail.com, geesarakasturiarachchi@gmail.com, chacmb@gmail.com*

In the past thirty years, a significant global trend in educational leadership and management has been the exploration of the linkages between school leadership and learning, particularly the impact of principals' instructional leadership on teachers' professional development. This study aimed to investigate the effects of principals' instructional leadership on the professional development of teachers within the Colombo education zone in Sri Lanka. The study follows the positivist research philosophy and employs a multi-quantitative research methodology and deductive research approach. Data were collected through a questionnaire survey from 367 participants selected randomly from schools in the Colombo education zone. The data were analyzed using quantitative statistical methods. The specific objectives of this study are to: identify the nature of professional development programs implemented in schools; recognize the relationship between these programs and the implementation of the total curriculum; understand teachers' perceptions of the importance of professional development programs for curriculum implementation; and identify strategies to enhance principals' instructional leadership in fostering teachers' professional development for curriculum implementation. The study found that professional development is significantly influenced by principals who cultivate a positive school learning climate. There is a strong positive and statistically significant relationship between principals' management of instructional programs and teachers' professional development. The results revealed that principals, as instructional leaders, actively manage the instructional processes in their schools and take appropriate steps to develop a conducive learning climate. Principals are seen to play a crucial role in organizing school-based teacher development programs, indicating their commitment to the professional growth of their teachers. Most instructional leaders and principals have undertaken initiatives for teachers' professional development, aligning with their responsibility to implement the total school curriculum effectively. The study highlights the importance of instructional leadership in enhancing the professional development of teachers. Principals are instrumental in creating a supportive learning environment and providing the necessary resources and opportunities for teachers to develop professionally. By fostering a strong school learning climate and managing instructional programs effectively, principals can significantly influence the successful implementation of the curriculum. In conclusion, the study underscored the critical role of principals as instructional leaders in promoting teachers' professional development. Effective instructional leadership involves not only managing the instructional program but also creating a positive learning environment and supporting teachers' continuous growth. Recommendations for improving instructional leadership include providing principals with ongoing training in leadership skills, enhancing collaboration among educators, and ensuring adequate resources for professional development programmes.

**Key Words:** Instructional Leadership, Professional Development, Principals, Teachers, Total Curriculum

**Exploring the Role of Management Professional in Outcome-Based Management Education; Sri Lankan University Educators' Perspective**

***Piyasena K.G.C.C.<sup>1,4\*</sup>, Mohommed L.A.<sup>2</sup>, Danapala R.M.<sup>3</sup>***

<sup>1</sup>Faculty of Social Science, Arts and Humanities, Lincoln University College, Malaysia.

<sup>2</sup>Department of English, Faculty of Social Science, Arts and Humanities, Lincoln University College, Malaysia.

<sup>3</sup>Department of English Language Faculty of Social Sciences and Humanities, Teaching, Rajarata University of Sri Lanka.

<sup>4</sup> Department of Human Resource Management, Faculty of Management Studies and Commerce, University of Sri Jayewardanapura, Sri Lanka.

[kgccpiyasen@lincoln.edu.my](mailto:kgccpiyasen@lincoln.edu.my), [piyasena@sjp.ac.lk](mailto:piyasena@sjp.ac.lk)

Quality education is one of the sustainable development goals (SDG no 04) specified by the United Nations. Outcome-based education approach is a globally accepted approach to enhancing the quality of education. The expected outcome of management education should be competent graduates who can become successful management professionals by fulfilling industry requirements. For that, university educators, as the main decision-makers in the education system, need to have a proper connection with management professionals. Maintaining proper industry-academic collaboration is not a simple task. However, the role of management professionals in outcome-based management education (OBME) remains unexplored. Therefore, the main objective of this study is to explore the role of management professionals in maintaining proper industry-academic collaboration in the context of OBME. Under the interpretivism research paradigm, the single-case design was used to achieve the research objective. The first and largest faculty of management studies and commerce in Sri Lanka was selected purposively based on its significance and data accessibility. Primary data were collected via semi-structured interviews with 15 senior educators. Interview transcriptions were analyzed thematically using NVIVO content analysis software. The coding hierarchy was built based on the theory of constructive alignment. The study revealed several key insights into the role of management professionals in OBME. First, the research highlighted the critical importance of continuous dialogue between educators and industry professionals. This interaction was found to be essential for aligning curriculum content with real-world industry needs, ensuring that graduates possess relevant and up-to-date managerial competencies. Furthermore, the findings underscored the role of management professionals in providing practical insights and contemporary case studies, which enhance the practical understanding of students. The involvement of industry professionals in the educational process also facilitated the creation of collaborative projects and internships, offering students hands-on experience and a clearer understanding of the industry's expectations. These included differences in expectations, time constraints, and a lack of structured frameworks for ongoing interaction. Despite these challenges, the participants emphasized that a well-established partnership between universities and management professionals is crucial for the successful implementation of OBME.

**Keywords:** Constructive Alignment; Management Professionals; Outcome-Based Management Education



## **A Study of the Effects of Tricks Used by Adults to Frighten and Control Young Children**

**Shareena Sehu Dawood<sup>1\*</sup>**

*<sup>1</sup>Department of Education, Faculty of Education, Lincoln University College, Sri Lanka.*

*shareenasehudawood@gmail.com*

Adults' attempts to scare young children to correct their behaviour is a practice that is quite widespread but one that has raised much controversy. These are usually in the form of myths, threats that are likely to be amplified or even telling a blatant lie to create instantaneous obedience. These strategies may be common but the subsequent psychological and behavioural effects on children have not been well studied. The present research is designed to examine the impact of fear on young children, which is induced by adults, based on the short-term and long-term consequences on children's emotional status, trust, and behaviour. A combination of both quantitative and qualitative research was used to conduct the study. Finally, the target population sample comprised 50 children of the age range of 4-8 years and their primary caregivers. Questionnaires were used to collect quantitative data on children's moods, trust in adults, as well as anxiety behaviours. Such data were obtained through interviews with the caregivers and observation in the natural environment. Some evidence suggests that children often subjected to fear appeals are more worried and sceptical of other people than children who are not. They also had higher rates of obedience in the short term, but had more behavioral problems, including aggression and social withdrawal, in the prolonged run. The caregivers said that they were able to get immediate compliance from the patients as a result of the use of restraints while a significant number of them did not know the adverse effects in the prolonged run. The study reveals how compliance with the instructions in particular situations may be connected with the risk of developing certain psychological disorders in the future. Although fear-based strategies guarantee compliance in the short term, they have negative effects on the emerging relationship between children and adults and developmental outcomes. The results indicate the necessity of employing different, more constructive techniques of discipline which contribute to the formation of trust and a feeling of safety in children. Informing the caregivers of the negative outcomes of a fear-based approach and encouraging positive discipline may help avoid the negative consequences this study found. Therefore, this research calls for a re-look at disciplinary measures that are widely used and promotes the use of techniques that have a positive impact on the emotional and psychological well-being of children. Future research should centre on rigorous treatment and evaluation programs that encourage appropriate disciplinary methods.

**Keywords:** Fear-based tactics, Child discipline, Emotional well-being, Trust development, Behavioral outcomes, Child psychology.



## **The Efficiency of Read-to-Me App on Enhancing Reading Comprehension Skills in English Language of Secondary School Students in Sri Lanka; With Special Reference to Kandy Educational Zone in Central Province**

***Midipolawatta, D.P.<sup>\*1</sup>***

*<sup>1</sup>Faculty of Social Science, Arts and Humanities, Lincoln University College, Sri Lanka  
[dilanimidipolawatta@gmail.com](mailto:dilanimidipolawatta@gmail.com)*

This study explored the efficacy of the Read-to-Me program, an innovative component of the Right-To-Read initiative, in augmenting English reading and comprehension skills among secondary school students in Sri Lanka, with a focus on the Kandy educational zone. Read-To-Me is an Artificial Intelligence (AI) programme for multi-sensory reading comprehension which has the ability to train itself to read any text. This AI-driven platform, designed to enhance students' proficiency through a multi-sensory approach, is integrated with the local English curriculum. Read-To-Me trains itself to read the assigned textbooks eliminating the need of introducing new or supplemental study material. By today over 15 million students utilize this software in 11 countries including Sri Lanka. This software includes features such as customizable voice settings to fit the needs of the learner, an English dictionary to help with word meaning comprehension in the language, a picture dictionary to help with word meaning comprehension through pictures, a tool for translating words into colloquial language, and a pronunciation aid to reinforce phonetic skills. In Sri Lanka, it incorporates the local English Language syllabus which is taught in government schools. Therefore, if this software works effectively, secondary school students should not have any difficulty regarding reading skill in the English language. Despite its widespread implementation, challenges persist, as some students continue to grapple with reading proficiency. The goal of this study is to discover the efficiency of read-to-me app on enhancing reading and comprehension skills in English language of secondary school students in Sri Lanka; with special reference to the Kandy educational zone in Central Province. The study was conducted at a well reputed girls' school in Kandy and the significant sample had 729 student participants in which 247 participants were from grade 6, 237 participants were from grade 7 and 245 participants were from grade 8. The sub sample of the study comprised 7 participants from grade 7 and 8 participants from grade 8. Further it comprised 10 English Language teachers who teach for grade 6, 7 and 8 students. This study was designed as a descriptive correlational survey where the main samples were selected by purposive sampling and the sub student sample by stratified random sampling method. Sub teacher samples were selected by purposive sampling method. Data was collected via self-administered questionnaires and interviews and analyzed using Microsoft Excel. The findings indicate that the program's reading pace and intonation fail to consistently yield the desired outcomes, particularly due to improper pausing. Additionally, the English and visual dictionaries fall short in effectively elucidating word meanings, leaving students with an incomplete understanding. Conversely, the translation tool proves highly beneficial in demystifying unfamiliar vocabulary, while the pronunciation tool markedly enhances students' phonetic competencies. These results underscore the program's potential, while also highlighting critical areas for refinement to more effectively support students in mastering English reading and comprehension.

**Keywords:** Right-to-Read, Read-to-Me, Reading Comprehension, AI Software in Reading

## **Effectiveness of Using Language Games on Development of Vocabulary: A Research Conducted Among Grade 4 Students of Wimaladharma National School**

***Dunukara, N.<sup>1\*</sup>***

*<sup>1</sup>Department of Education, Faculty of Social Science Arts and Humanities, Lincoln University  
Sri Lanka.*

*[ndunukara93@gmail.com](mailto:ndunukara93@gmail.com)*

This study investigates the impact of integrating language games into the curriculum to enhance vocabulary development among Grade 4 students at Wimaladharma National School, Gampola. Vocabulary development is crucial for early education, as it influences reading comprehension and overall language skills. The study addresses a research gap regarding the effectiveness of language games for Grade 4 students within the Sri Lankan educational context, an area often overlooked in existing studies. By focusing on this specific age group, the study aims to provide insights into how game-based learning can be tailored to meet their needs, contributing to more effective vocabulary instruction and improved educational practices. The primary aim is to evaluate how language games influence vocabulary acquisition, student engagement, and attitudes towards learning English in a classroom setting using games. The study involved two Grade 4 classes: Grade 4A as the experimental group and Grade 4B as the control group. Thirty students from Grade 4A and thirty from Grade 4B participated in the research, representing a diverse range of abilities. Quantitative assessments through pre-test and post-test vocabulary tests were complemented by both qualitative and quantitative data obtained from Likert-scale attitude questions in student questionnaires administered to the experimental group, thereby providing comprehensive insights into the impact of language games on vocabulary acquisition and student attitudes towards learning English. The research identifies common challenges in vocabulary acquisition, assesses attitudes towards game-based learning, and measures the effectiveness of these games in enhancing vocabulary skills. Employing a quasi-experimental design, the study divides participants into two groups: one receiving traditional vocabulary instruction and the other exposed to vocabulary lessons enriched with language games. Findings reveal a significant improvement in vocabulary scores among students exposed to language games, demonstrating enhanced retention of new words and heightened motivation towards learning English. From the student questionnaire, it is evident that the attitude questionnaire underscores the positive impact of game-based learning on student engagement and enjoyment in the classroom environment. The study underscores the critical role of carefully selecting language games that resonate with students' diverse interests and learning needs. Specifically, these games should focus on enhancing skills in word recognition, pronunciation practice, and contextual usage. This approach proves effective in facilitating vocabulary acquisition and fostering a dynamic and interactive learning atmosphere. Based on these findings, recommendations include integrating more interactive and gamified learning activities into English language curricula, enhancing professional development opportunities for teachers in game-based pedagogies, and exploring digital platforms for delivering game-based language instruction to sustain student engagement. In conclusion, this research highlights the efficacy of language games as a pedagogical tool for enhancing vocabulary development among Grade 4 students. By promoting active participation, enjoyment, and effective learning strategies, games not only improve vocabulary acquisition but also contribute to a positive classroom atmosphere conducive to overall language proficiency. This study contributes to advancing innovative teaching methodologies in language education, advocating for interactive and student-centered approaches to foster language learning among young learners.

**Keywords:** Educational effectiveness, English language teaching, Grade 4 students, Language games, Vocabulary development

## **Integrating Sustainable Development Goals in Higher Education: Enhancing English Language Proficiency and 21st Century Skills**

**Wickremasinghe, F.N.<sup>1\*</sup>, Neranjani, E.S.<sup>1</sup>**

<sup>1</sup>*Faculty of Education, University of Colombo, Sri Lanka.*

*[gibe.nilu@gmail.com](mailto:gibe.nilu@gmail.com)*

*[sulochana@humed.cmb.ac.lk](mailto:sulochana@humed.cmb.ac.lk)*

Education is the core of achieving the Sustainable Development Goals (SDGs). Higher education (HE) plays a significant role in shaping future professionals and addressing global issues such as poverty, health, and well-being to empower sustainable livelihoods. English Language Proficiency (ELP) is the key to unlocking the future and has a dynamic role in educational and economic platforms. Emphasis must be placed on developing ELP and 21st-century high-level cognitive and non-cognitive/transferable skills such as critical thinking, communication, collaboration and creativity in achieving Education for Sustainable Development (ESD), lifelong learning and Quality Education (SDG 4) for a sustainable future. The objectives of the study are to assess graduates' perspectives on developing ELP and 21st-century skills, identify effective strategies and processes in developing ELP, and explore challenges graduates encounter in implementing action research while integrating SDGs. Vygotsky's Socio-cultural Theory, Social Interdependence Theory, Theory of Social Representations, and Second Language Acquisition, intertwined with the theory of ESD, provide a theoretical framework for integrating sustainability in developing ELP and 21st-century skills. The qualitative research design provides the perceptions of twenty subjects. The pedagogy was designed to align with the action research method. Data were collected through focus groups, face-to-face interviews, and lesson observations. Thematic data analysis was used to interpret the findings. Key findings revealed critical thinking skills (developed learner autonomy and adaptability), collaborative skills (promoted learner flexibility and responsibility), communication skills (enhanced oral and written communication skills), and creativity (increased learner motivation and risk-taking in learning). This study provides meaningful implications for curriculum developers to integrate SDGs in higher education. Further research is recommended to explore the integration of SDGs in various fields, reaching the full potential of SDGs to contribute towards a sustainable world.

**Keywords:** English language proficiency, 21st-century skills, Sustainable development goals, Higher education, Education for sustainable development, Quality education (SDG 4)

## **ABSTRACTS - SOCIAL SCIENCE**

---

## **Mindful Resilience: Applying Buddhist Nirvana for Mental Freedom**

**Ven. Sunandabodhi, B.** <sup>1\*</sup>

*<sup>1</sup>Post Graduate Department, Buddhist Studies in Buddhist and Pali University of Sri Lanka  
[sunandaboodhi@gmail.com](mailto:sunandaboodhi@gmail.com)*

This research delves into the philosophical underpinnings of the human mind, acknowledging its pivotal role in shaping the sustainability and survival of individuals and the world at large. The problems of today: All human beings suffer from various mental issues such as anger, war, anxiety, and conflict. The study emphasizes the importance of maintaining good mental freedom for prolonged well-being. The primary objective of this research was to explore the application of Buddhist concepts, particularly the notion of nirvana, in both preventive and curative aspects of mental freedom. Qualitative content analysis draws data from oral, written, and electronic sources, focusing on primary data extracted from the Pāli Canon. The investigation involves studying individuals engaged in meditation through semi-structured interviews to comprehend the impact on their mental states, encompassing both happiness and suffering. Buddhism asserts that “Ārogyā paramā lābhā,” translating to ideal happiness is synonymous with good health. Over 45 years, Gautama Buddha expounded on the path to life's happiness through the development of mentality. The teachings encompass fundamental concepts like the Four Noble Truths, the Eightfold Path, and the Four Mindfulness Meditations. Historical examples, such as Kisā Gotamī, Patācārā, Angulimala, King Kosala, Chulla Panthaka Thero, and Ālawaka, exemplify how individuals during Buddha's time addressed mental freedom through the application of Buddhist nirvana. Drawing a parallel to modern cognitive-behavioral therapy introduced by Sigmund Freud, the research contends that Buddha's teachings offer a profound approach to addressing mental freedom concerns. The conclusion posits Buddhism as an ideal and permanent solution for preventing health issues globally, as individuals practicing the path to nirvana can eradicate mental and health issues throughout human's being samsara Journey.

**Keywords:** Mental freedom, Meditation, Nirvana, Prevention

## **Transcending Suffering: The Role of Nirvana in Holistic Human and Social Development**

**Ven. Sunandabodhi, B.** <sup>1\*</sup>

<sup>1</sup>*Faculty of Graduate Studies, Buddhist and Pali University of Sri Lanka, Sri Lanka*  
[sunandaboodhi@gmail.com](mailto:sunandaboodhi@gmail.com)

Humans universally seek spiritual development, recognizing the impermanence of life and the inevitability of death. Consequently, many individuals aspire towards the path of liberation, aiming to cultivate their minds and transcend earthly limitations. This study explores the ways in which Buddhist teachings on Nirvana can contribute to the development of individuals and society. The research employs qualitative data through content analysis, utilizing written, electronic, and digital sources. The Pali Canon is considered the primary data collection source. By examining the core principles of Nirvana, such as liberation from suffering, the cessation of craving, and the cultivation of wisdom and compassion, this study aims to shed light on how these teachings can foster personal growth, social well-being, and ethical engagement. The *Vyaggapajja Sutta* clearly points out the development of existence in life and life after death. In addition to that, the *Aggañña Sutta*, *Sīhanāda Sutta*, and *Ina Sutta* also describe factors related to the development of the economic aspects of human life. The *Parinibbāna Sutta*, *Madhupindika Sutta*, *Upāli Sutta*, and *Kālāma Sutta* also convey the Buddha's message of peace. These teachings can be directly applied to contemporary human development. By examining the potential applications of Buddhist teachings on Nirvana in contemporary contexts, this research aims to highlight the relevance and value of ancient wisdom in fostering holistic human development. The findings of this study contribute to a broader understanding of how Buddhist principles can be integrated into existing frameworks for personal and social transformation, offering insights and strategies to address the multifaceted challenges faced by individuals and societies in the modern world.

**Keywords:** Meditation, Nirvana, Social Well-Being, Personal Growth

## **The Psychological Study of Academic Problems Faced by Arts Students Due to the Current Economic Crisis in Sri Lanka.**

**Dilshan K.G.I.<sup>1\*</sup>**

*<sup>1</sup>Department of Philosophy and Psychology, Faculty of Humanities and Social Sciences,  
University of Sri Jayewardenepura, Sri Lanka.  
[iranga18dilshan@gmail.com](mailto:iranga18dilshan@gmail.com)*

The economic crisis in Sri Lanka has profoundly affected numerous aspects of society, particularly higher education. University students are encountering both psychological and academic hardships because of the ongoing economic crisis. Recognizing these difficulties is essential for creating effective strategies to enhance student well-being and academic success. Amid the current economic crisis in Sri Lanka, the student community is grappling with substantial financial strains and psychological challenges. Therefore, the research problem of this research is what are the academic problems faced by university students due to the current economic crisis in Sri Lanka and what are the psychological problems arising from it? is to study. The objective of this study is to investigate the academic problems faced by university students due to the country's financial instability and the resulting psychological challenges. This research examines the academic performance, mental health and overall quality of life of university students. Therefore, the 278 students studying in the 3<sup>rd</sup> year of the Faculty of Humanities and Social Sciences of University of Sri Jayewardenepura were randomly used as the research sample. Quantitative research methodology and qualitative research methodology were used to collect data for this research. Accordingly, data is collected through interviews and online questionnaires. Data collection was done through observation, interviews, magazines and newspaper studies through qualitative research methodology. Quantitatively obtained data were analyzed using Excel computer software, and qualitatively obtained data were analyzed via thematic analysis method. The results of the research show that the academic performance of art students (82.73 %) has dropped significantly due to the economic crisis in the country. The study revealed that due to the increase in the price of educational equipment, the student community has faced various difficulties even in purchasing it. Furthermore, the university system has collapsed due to the protest movements and agitations carried out due to the disparity in the salaries of non-academic staff. Also, due to financial opportunity, the cost of living of the students has also increased, and it was revealed through the interviews that some students have been tempted to drop out of university education. It has been revealed that university students have faced many psychological problems due to financial instability, and 5.39% have sought psychological counseling. According to the study, 35.97 % of low-income students faced severe academic and psychological problems compared to other students. According to the data obtained, 16.85 % have faced technical problems while resorting to online education. This study highlights the severe impact of the economic crisis on the academic and psychological well-being of university students in Sri Lanka. According to the data uncovered by the research, there is a need for targeted interventions to help the student community financially and psychologically.

**Key words:** Academic performance, Academic problems, Counseling, Economic crisis, University students.

## **Does Public Concern About Climate Change Affect International Environmental Law? The Great Jurisprudence**

**Spencer Vitharana, S.P.H.<sup>1\*</sup>, Wishwajith, W.M.<sup>2</sup>, Kandegama, W.<sup>2</sup>**

<sup>1</sup>*Faculty of Law, Girne American University, UK.*

<sup>2</sup>*Faculty of Agriculture and Plantation Management Wayamba University of Sri Lanka.*

*wishwajith@wyb.ac.lk, s.vith@aol.com*

Increasing levels of human activities pose a more significant threat to their ecological environment, creating multiple crises that critically impact planetary systems. World governments have agreed upon a broader range of international treaties, but the outcome has not produced a satisfactory level to limit the carbon dioxide emissions from burning fossil fuels producing nations that cause global warming and climate change. It is time for decisive action on many levels to safeguard our unique planet and all the species that it hosts. To suppress the unpresidential levels of carbon dioxide emissions, mainly from the coal, oil and gas, energy industries, legal scholars are seeking to assess the impacts of litigation on the direction of international environmental law. In 2024, the global maritime court in Berlin gave the first climate-related environmental judgment recognizing that greenhouse gas emissions from fossil fuels are responsible for global warming and climate change, which also causes marine pollution as planet-warming gases are absorbed by the oceans. The Environmental Protection Agency (EPA) in the USA and the European Environmental Agency (EEA) in Europe currently report that carbon emissions have decreased in the United States and the European Union for the last ten years. Studies by the United Nations Environment Program (UNEP) and the Sabin Centre for Climate Change Law at Columbia University, USA, reveal that the total number of climate cases has increased. To this extent, carbon emissions can be reduced by shifting the international environmental rule of law globally to mitigate climate change risks. Considering this development, this research aims to explore the relationship between the number of climate litigation cases and the carbon emissions in the USA and the European Union countries. For this research, public concern about climate change variable is considered a proxy variable for the number of litigations in the USA and Europe. Accordingly, this research examines the causality of these two variables—the number of climate change litigation cases and carbon emissions quantitatively to reduce carbon emissions in the United States and European Union countries. Social survey and carbon emissions data have been obtained from Yale University, USA, and The Energy Institute, UK, from 2013 to 2023. SPSS and Excel spreadsheets were used to get graphic and numeric outputs for a time-series descriptive analysis method. The descriptive analysis of decades of data reveals a significant relationship between public concern about climate change and the enforcement of international environmental law to reduce carbon emissions on both sides of the Atlantic leading to a greater jurisprudence. In other words, without public unity about climate change, it is improbable that the policymakers will be convinced the emitter, the oil and gas industry sector to reduce their carbon emissions.

**Keywords:** Climate Change, Carbon Emissions, Climate Change Litigation, Environmental Rule of Law, Jurisprudence.



## **Role Reversal in Drama Therapy: Enhancing Empathy and Emotional Understanding Among Institutionalized Children in Sri Lanka**

**Vidanagamage, S.D.<sup>1\*</sup>, Bhaumik, A.O.<sup>1</sup>, Irugalbandara, A.I.<sup>2</sup>**

<sup>1</sup>*Department of Psychology, Faculty of Social Science, Arts and Humanities,  
Lincoln University College, Malaysia.*

<sup>2</sup>*Faculty of Education, Open University of Sri Lanka.  
[vsdiltrukshi@lincoln.edu.my](mailto:vsdiltrukshi@lincoln.edu.my), [aiiru@ou.ac.lk](mailto:aiiru@ou.ac.lk)*

Institutionalized children in Sri Lanka face significant emotional and psychological challenges. Around 10,697 children living in 367 institutions across the country often face emotional problems, empathy deficits, psychological and behavioral issues, and limited social skills. Drama therapy can be identified as one of the creative and promising approaches among various psychological therapies available to address these issues. Incorporating drama therapy can overcome these challenges effectively and help mitigate the adverse effects on the children's personal growth and development. Role reversal, a drama therapy technique, where participants act out and switch roles and allows them to understand and empathize with others' positions. It is one of the drama therapy techniques for enhancing empathy and emotional understanding. In Sri Lanka, the application of drama therapy is underutilized due to a lack of experts, a lack of awareness about its benefits, and a lack of studies. When Considering Sri Lanka's historical use of dramatic healing rituals over centuries, it can be well-supported to introduce drama therapy as a therapy for Sri Lankans. Therefore, the study aims to investigate the effectiveness of role reversal in drama therapy to enhance empathy and emotional understanding of institutionalized children in Sri Lanka. Eight sessions were designed for the drama therapy intervention. The study sample was selected purposively from a state-run institute under the Department of Probation and Childcare Service in the Southern Province. Eighteen children aged 12-16 years were selected, considering early and mid-adolescence as a critical period for emotional and social development. This sample consisted of 10 females and 8 males. The study used qualitative methods, including in-depth interviews, focus group discussions, and observations to collect data. Thematic analysis was used to analyze the data. Accordingly, four key themes were identified: Emotional Regulation, Empathy Growth, Communication and Social Moral Reasoning Development; and Self-Esteem and Identity. The findings highlighted that role reversal helps better understand and express their own emotions. Children who initially exhibited anger learned to articulate their feelings more calmly and effectively. Additionally, the ability to empathize with others, social interaction, self-identity, and self-esteem have been improved through role reversal. These conclusions emphasize the importance of integrating drama therapy into existing psychological interventions for institutionalized children. Therefore, policymakers should prioritize setting up proper mechanisms to include effective therapeutic approaches, such as drama therapy for mental well-being. This study addresses a significant gap in applying creative therapeutic techniques for children who have been exposed to traumatizing incidents. However, further research is required to ascertain the effectiveness of drama therapy for institutionalized children.

**Keywords:** Drama Therapy, Empathy and Emotional Understanding, Institutionalized Children, Role Reversal

**Decoding Facebook Narratives of Premarital Cohabitation and Marital Stability -  
Sri Lankan Female Facebook Users' Perspectives**

**Fernando, W.G.S.T.<sup>1\*</sup>**

*<sup>1</sup>Department of Indigenous Social Sciences, Faculty of Indigenous Social Sciences and  
Management Studies, Gampaha Wickramarachchi University of Indigenous Medicine.  
[warnakulasuriyasayuri@gmail.com](mailto:warnakulasuriyasayuri@gmail.com)*

The sensitive concept of premarital cohabitation is a controversial practice in the country as Sri Lanka - home to a rich cultural heritage - has traditionally held strong views on marriage. Facebook narratives provide unique insights into women's discussions and engagement with this topic. This study delves into how modern Sri Lankan women navigate this evolving social landscape, utilizing Facebook as a window to express their narratives. Further, the research investigates how social media platforms like Facebook might be influencing cultural change in this digital age. As Sri Lanka grapples with changing social norms, this research explores the nuanced views of women on premarital cohabitation and its link to marital stability. Analyzing Facebook narratives, a vital platform for their voices offers timely insights for informed discussions and future policy considerations. Though many studies have already been conducted outside the country on various aspects of premarital cohabitation, the intersection between marriage and its quality and stability, there is a dearth of research on those aspects from women's perspectives, especially using one of the largest Sri Lankan women only Facebook group comprised with more than hundred thousand members. Therefore, this study aims to fill that notable gap through the rich findings. Combining quantitative and qualitative data collection instruments, this mixed-methods study examines in depth how Sri Lankan female Facebook users perceive the concept of premarital cohabitation as impacting marital stability either positively or negatively and deviating from traditional Sri Lankan marriage discourse. Moreover, these data explore how demographic elements such as age, geographic location, educational background, and religious beliefs influence these women's perceptions. A self-administered questionnaire was distributed to gather data on a broad scale. Based on the results of the descriptive analysis, synchronous focus groups were conducted to explore the topic in-depth, obeying purposive sampling techniques for participants. Thematic analysis primarily involves analyzing qualitative data to interpret samples' perceptions regarding the topic. Moreover, narrative analysis and discourse analysis techniques are incorporated for richer insights. Since philosophically this research adopts interpretivist epistemology and constructivist ontology, the focus is on understanding human behavior rather than explaining. Through the analysis of female Facebook narratives, the study digs into the details of premarital cohabitation, reaching beyond stereotyped interpretations and illustrating how distinct variables shape women's views on the concept of premarital cohabitation and marital stability. These findings contribute significantly to the volume of knowledge that exists on cross-cultural cohabitation trends. The study has the potential to empower women by breaking down traditional social taboos on sexuality-related concepts such as premarital cohabitation, considering the national context, and fostering open discussions that normalize those topics.

**Keywords:** Cultural Change, Female Facebook Users, Facebook Narratives, Marital Stability, Premarital Cohabitation

## **Association Between Self-Efficacy and Public Speaking Anxiety Among the Adults Living in Sri Lanka**

***Perera, H.A.R.T.N.,<sup>1,2\*</sup>***

*<sup>1</sup> Department of Psychology, Faculty of Social Sciences, Colombo Institute of Research & Psychology, Sri Lanka*

*<sup>2</sup> Department of Psychology, Faculty of Social Sciences, London Metropolitan University College, United Kingdom*

*[ruth.nishamini@gmail.com](mailto:ruth.nishamini@gmail.com)*

This study explores the relationship between Public Speaking Anxiety (PSA) and Self-efficacy among Sri Lankan adults. The primary objective is to propose methods to reduce PSA, commonly known as glossophobia. Glossophobia is the fear experienced when speaking in front of an audience, public speaking, a prevalent form of social anxiety that can range from mild nervousness to intense fear and panic. PSA among Sri Lankan adults is distinct due to factors such as a traditional educational system that offers few public speaking opportunities and the cultural background where failure leads to social criticism, prompting individuals to avoid public speaking. Thus, it is important to observe factors such as self-efficacy that may reduce the effects of cultural and social influences on public speaking performances. Self-efficacy, a concept introduced by Albert Bandura, refers to an individual's belief in their ability to perform specific tasks successfully. This concept is a key component of Bandura's social cognitive theory. Self-efficacy significantly influences how people think, behave, and feel. Bandura stated that self-efficacy-driven motivation leads individuals to achieve their goals. Thus, individuals with high self-efficacy are more likely to tackle public speaking challenges confidently. Although numerous studies have been conducted on PSA and self-efficacy, most were focused on school students. Therefore, it is essential to investigate whether there is a connection between PSA and self-efficacy among adults, particularly those living in Sri Lanka. To examine this relationship, a correlation research design was employed. Data were collected using a survey to measure self-efficacy and PSA levels among the respondents. The sample consisted of 120 randomly selected volunteers, all of whom were adults currently pursuing higher studies or employed. The results indicate a statistically significant negative correlation between self-efficacy and PSA which suggests that individuals with higher self-efficacy are less likely to experience PSA. Additionally, the study found no significant difference in PSA between adult females and males. However, there was a significant difference in PSA between adults pursuing higher education and those who are working, with higher education students experiencing more anxiety. These results confirm the predictions of attribution theory and align with the findings of similar studies conducted in other university and school settings. Further, these results highlight the importance of developing interventions to increase self-efficacy as a means of reducing PSA. Therefore, it is highly recommended to conduct workshops aimed at enhancing self-efficacy for both university students and employees which will help individuals to better prepare for public speaking, thereby reducing their anxiety and significantly enhancing their overall quality of life.

**Keywords:** Glossophobia, Public Speaking Anxiety, Social Cognitive Theory, Self-Efficacy

## **Social Media as a Form of Election Campaigning in Sri Lanka: Trends, Prospects and Challenges**

**Siriwardhana, I.W.<sup>1\*</sup>**

*<sup>1</sup>Bandaranaike Centre for International Studies, Sri Lanka*

*[isusiriwardhana@gmail.com](mailto:isusiriwardhana@gmail.com)*

Political parties were introduced to Sri Lanka in the 1930s. Election campaigns have undergone significant changes since then. Initially, political rallies, canvassing and exhibition of posters and cutouts were the dominant forms of election campaigns used by political parties in Sri Lanka. Later, by the 1990s, mass media, mainly TV and radio advertisements became the key mode of election campaigning. With the assistance of mass media, political parties could reach out to their electorate more effectively. However, TV and radio commercials increased the expenditure cost of the elections campaign and deepened the inequality in the playing field further. Use of social media for election campaigning in Sri Lanka was initiated in the 2010 presidential election, and during the last decade it has transformed the election campaign sphere. In that context, the study expects to investigate: why and in what ways political parties and individual candidates utilize social media platforms in Sri Lanka? What are the positive and negative consequences of using social media platforms in election campaigns? And what are the mechanisms that Sri Lanka has introduced to regulate election campaigns in social media? The qualitative study is done by directly collecting data from social media platforms and using secondary data. The secondary data are collected through books, journals and other resources. The overall findings of the study show that these innovative campaign methods escalate the competition among political parties. Through social media platforms, political parties are able to disseminate their messages to respective electorates on different platforms such as Facebook, WhatsApp, X (Twitter), TikTok, and Instagram. These platforms provide various immediate communication methods, such as advertisements, group pages, videos, and memos. The attractiveness, effectiveness and its ability to reach out to a larger number of voters are some of the advantages of the social media campaigns. Political parties can engage in discussion with the voters through social media platforms. It encourages communication between political parties and the voters, creating a democratic space to exchange ideas. It can be noted that women, and new candidates face a lack of support from most political parties to carry out their election campaign. They can benefit from social media platforms for their election campaigns where it assists to reduce the inequality in the playing field and reduce the campaign spending. Misuse of information is the main disadvantage of social media campaigns where it can manipulate opinions of the voters, and it would change voter behaviors. Lack of regulation to monitor social media election campaigns is the major challenge faced by the Election Commission of Sri Lanka. It prevents identifying violations of election rules. On the other hand, over-regulation can stifle democratic debate, and discussion and there are fears that the new Online Safety Act No. 9 of 2024 could be used to suppress free speech and freedom of information. In that context, the challenge is bringing a balanced regulation mechanism which should provide a democratic space for election campaigning through social media.

**Keywords:** Elections Campaigning, Political Parties, Representative Democracy, Sri Lanka, Social Media Platforms.

## **Exploring How Early Attachment with Caregivers Influences Emotional and Social Development**

***Ilham, S.M.*** <sup>1\*</sup>

*<sup>1</sup>Amazon College (PVT) Ltd., Sri Lanka*

*[ilhamcbs@gmail.com](mailto:ilhamcbs@gmail.com)*

Early attachment between children and their caregivers is crucial for psychological development. This study examines the influence of early attachment on the emotional and social development of children in Sri Lanka, focusing on selected daycare centres in Colombo. Drawing on attachment theory, the research explores how caregiver-child relationships impact children's emotional regulation, social skills, and psychological well-being. The study uses a mixed-methods approach, combining quantitative assessments and qualitative observations to gather comprehensive data. Participants include children aged 2-5 years from ten daycare centres in Colombo, along with their primary caregivers and daycare staff. Attachment security is evaluated using standardized tools like the Strange Situation Procedure and Attachment Q-Sort. Emotional and social development is assessed through caregiver and teacher reports, direct observations, and validated instruments such as the Strengths and Difficulties Questionnaire (SDQ) and the Social Skills Rating System (SSRS). Initial findings indicate a significant correlation between secure attachment patterns and positive emotional outcomes. Children with secure attachments to their caregivers demonstrate better emotional regulation, resilience, and adaptability. They manage stress more effectively and exhibit lower levels of anxiety and aggression than their insecurely attached peers. Securely attached children also show enhanced social competencies, including effective communication, empathy, and cooperative behaviors, and are more likely to engage positively with peers and exhibit leadership qualities. In contrast, children with insecure attachment patterns, characterized by ambivalence, avoidance, or disorganization, face heightened emotional challenges. These children often experience emotional dysregulation, frequent mood swings, fearfulness, and difficulties establishing trust. Socially, they struggle with forming and maintaining relationships, often displaying withdrawal, dependency, or aggressive behaviors in peer interactions. The qualitative component of the study, consisting of interviews with caregivers and daycare staff, reveals critical insights into the contextual factors influencing attachment and development. Caregivers in Colombo face unique challenges, including socio-economic stressors and limited access to parenting resources, contributing to variations in caregiving styles and attachment quality. The study also highlights the role of daycare centres as pivotal environments for fostering secure attachments, emphasizing the need for well-trained staff and supportive policies to enhance caregiver-child interactions. This research underscores the importance of early attachment in shaping emotional and social trajectories, advocating for interventions to support caregivers and enhance daycare environments. Findings suggest that integrating attachment-based frameworks into early childhood programs and policies could significantly improve children's well-being in Sri Lanka, fostering healthier, more resilient future generations.

**Key words:** Early Attachment, Caregiver-Child Relationship, Emotional Development, Social Development, Attachment Theory

## **Illegal Narcotics and Sri Lankan Society: Experiences of Three Forces and Police**

***Kasturi Arachchi, C.J.H.<sup>1</sup>, Kasturi Arachchi, G.G.O.<sup>1</sup>***

*<sup>1</sup>Business School, Sri Lanka Institute of Information Technology, Sri Lanka.*

*chathujhan@gmail.com, geesarakasturiarachchi@gmail.com*

The proliferation of illegal narcotics is a complex and pressing issue that profoundly impacts Sri Lankan society, with severe consequences for public health, security, and law enforcement. Among the nations grappling with the severe consequences of this phenomenon is Sri Lanka. This study aimed to holistically understand the proliferation of illegal narcotics and its impact on Sri Lankan society. The general objective of this study was to investigate the proliferation of illegal narcotics, its societal impact, and the role of the armed forces in addressing this issue. The main research question guiding this study is: What is the nature of the proliferation of illegal narcotics, its impact on Sri Lankan society, and the role of the armed forces? To address this question, a Mixed Method approach was employed, with a focus on the 'Convergent Parallel Mixed Method' as the primary research design. This methodology combines both qualitative and quantitative data collection and analysis techniques to provide a comprehensive view of the issue. A survey strategy and case study were utilized to explore the research problem. Data were gathered through questionnaires and interviews with Army and Police Officers involved in combating illegal narcotics. Thematic analysis was used to analyze qualitative data, while descriptive statistical tools were employed for quantitative data analysis. The survey results reveal a consensus among participants that the proliferation of illegal narcotics is a significant issue in Sri Lankan society, posing a serious threat to national security. However, there is a notable lack of confidence in the effectiveness of current law enforcement efforts to combat the illegal narcotics trade, as evidenced by the majority of respondents expressing dissatisfaction with these efforts. This suggests potential areas for further investigation and possible policy changes to enhance the effectiveness of anti-narcotics strategies. Findings also indicate that the proliferation of illegal narcotics has led to an increase in crime rates in Sri Lanka. Participants unanimously agree that addressing the illegal narcotics issue is crucial for the overall well-being of Sri Lankan society, highlighting the widespread recognition of its significance. While a majority of participants believe that their efforts to combat illegal narcotics positively impact the community, a notable minority express disagreement or strong disagreement, suggesting areas for improvement in current strategies and approaches. Based on the findings, several recommendations for future actions are proposed. Strengthening law enforcement capabilities and enhancing inter-agency coordination are essential to address the identified gaps in current strategies, improving the overall effectiveness of anti-narcotics operations. Additionally, comprehensive training programs should be developed to equip law enforcement officers with the necessary skills and knowledge to tackle the evolving challenges posed by illegal narcotics. Regular assessments and feedback mechanisms should be implemented to continually refine and improve anti-narcotics strategies, ensuring they remain effective and responsive to the changing dynamics of the narcotics trade.

**Key Words:** Illegal Narcotics, Sri Lankan Society, Law Enforcement, Crime Rates, Anti-Narcotics Strategies

## **Assessing the Impact of Yoga Practices for a Healthy Lifestyle: With Reference to Sri Lankan Secondary Education**

**De Zoysa, A.H.N.<sup>1\*</sup>**

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

*[harini@gwu.ac.lk](mailto:harini@gwu.ac.lk)*

In recent years, incorporating holistic techniques to enhance health and well-being among school students has gained prominence. This study aimed to examine the effectiveness of yoga practices in fostering a healthy lifestyle among secondary education students in Sri Lanka. The primary goal was to provide students with access to mindfulness practices and healthy movements that could improve their general well-being and reduce stress levels while studying. The specific objectives of this research were threefold: (1) to examine the extent to which yoga is known and practiced by schoolchildren; (2) to identify the benefits of yoga on both mental and physical well-being; and (3) to assess students' attitudes towards practicing yoga as part of a healthy lifestyle. A mixed-method research approach was employed to comprehensively address the research questions. This methodology combined quantitative and qualitative data collection and analysis techniques to gain a thorough understanding of the subject matter. Primary data were gathered from 260 secondary school students in Sri Lanka through questionnaires and interviews. The questionnaire was meticulously developed based on an extensive review of the literature on yoga and its impact on the health and well-being of schoolchildren. Additionally, secondary data were gathered from scholarly journals to supplement and contextualize the findings from the primary data. Stratified random sampling was used to ensure representation from various demographic groups within the student population. The data were analyzed using both quantitative approaches, including inferential analysis and descriptive statistics, and qualitative techniques, such as thematic analysis of interview transcripts. The quantitative analysis included significance testing, with results indicating that yoga practice had a statistically significant positive effect on mental health ( $p < 0.05$ ), physical fitness ( $p < 0.05$ ), and stress reduction ( $p < 0.01$ ). The findings revealed that while schoolchildren were generally aware of yoga, there were notable differences in the amount of practice. The analysis demonstrated several benefits of yoga, including improvements in mental health, physical fitness, and stress reduction. Furthermore, students' attitudes towards yoga were generally positive, with many recognizing how yoga practice could enhance both their academic performance and overall lifestyle. In conclusion, this study highlighted the significant role that yoga plays in promoting a healthy lifestyle among secondary school students in Sri Lanka. The results underscored the importance of integrating yoga into the school curriculum to foster holistic development and well-being. Future research should explore the long-term effects of yoga practice on students' academic and health outcomes.

**Keywords:** Healthy Lifestyle, Mindfulness, Students' Attitudes, Well-being, Yoga



## **The Impact of Emotional Intelligence on Stress Management of IT Employees in the Workplace**

**De Zoysa, A.H.N.<sup>1\*</sup>**

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

*harini@gwu.ac.lk*

In today's workplace, emotional intelligence (EI), which is defined as the ability to understand and control one's own emotions as well as those of others, has become essential. The main objective of the study was to assess the impact of emotional intelligence (EI) on the stress management of employees at work, looking at how EI can strengthen workers' coping strategies and improve their mental health. Gaining an understanding of this relationship is essential to creating interventions that work and creating a positive work atmosphere. The specific objectives of this research are: (1) to assess the levels of emotional intelligence among employees, (2) to identify the relationship between emotional intelligence and stress management capabilities, and (3) to determine the impact of emotional intelligence on overall mental well-being in the workplace. The study aims to provide empirical evidence on the importance of emotional intelligence (EI) in increasing stress resilience and mental health by addressing these objectives. 120 employees were randomly taken as the sample of this study. Methods such as interviews and questionnaires were used to collect primary data and magazines, books, journals and websites were used as secondary data. The Emotional Intelligence Appraisal (EIA) were used to measure EI levels, while the Perceived Stress Scale (PSS) and the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) were employed to assess stress levels and mental health, respectively. Data analysis was done both quantitatively and qualitatively. The study employed quantitative methods such as regression analysis and correlation analysis to analyze data and investigate the relationships among emotional intelligence, stress management, and mental health. Thematic analysis was used to examine qualitative data to find recurring themes and trends in the experiences and perspectives of employees. The results found that employees exhibited moderate to high levels of emotional intelligence. A strong positive correlation was identified between emotional intelligence and stress management capabilities. Additionally, higher emotional intelligence significantly improved overall mental well-being in the workplace. These findings underscore the importance of emotional intelligence in enhancing stress resilience and promoting better mental health among employees. In conclusion, this study emphasises the vital role emotional intelligence plays in stress management and improving mental health at work. The findings support that organizations can increase employee productivity and well-being by including EI training and development programs into their organizational initiatives Future studies should examine the long-term advantages of emotional intelligence (EI) on mental health at work and how it affects various organizational and social contexts.

**Keywords:** Emotional intelligence, Employee resilience, Mental well-being, Stress management



## **Foreign Tourist Preferences for Local Yoga Instructors; A Qualitative Exploration in Eastern and Southern Provinces of Sri Lanka**

**Uluwaththa, K.H.U.D.M.S.<sup>1\*</sup>, Perera, P.K.U.<sup>2</sup>**

<sup>1</sup> *Department of Indigenous Health Sciences, Faculty of Indigenous Health Sciences and Technology, Gampaha Wickramarachchi University of Indigenous Medicine, Yakkala, Sri Lanka.*

<sup>2</sup> *Department of Tourism Studies, Faculty of Management, Uva Wellassa University of Sri Lanka, Badulla, Sri Lanka.*  
[manusathz1008@gmail.com](mailto:manusathz1008@gmail.com)

Yoga, a wellness practice with ancient Indian roots, is gaining popularity in Sri Lanka due to its cultural heritage and natural beauty, making it a popular destination for tourists. Despite the availability of highly qualified foreign yoga instructors, foreign tourists demonstrate a strong preference for local instructors. This research aims to elucidate the factors driving this preference, emphasizing the role of cultural and educational elements in enhancing tourist satisfaction and loyalty. The study's objectives are threefold: to explore the reasons behind foreign tourists' preference for local yoga instructors, to understand the cultural and educational factors influencing this preference, and to identify the challenges faced by local instructors. Utilizing qualitative research methodology, the study draws on personal teaching experiences, observations, and semi-structured interviews with 20 foreign tourists in Sri Lanka's Eastern and Southern Provinces. Guest records from various yoga retreats were analyzed to identify trends in tourist preferences. Purposive and snowball sampling methods were employed to ensure a diverse participant pool, providing comprehensive insights into the tourists' experiences. Thematic analysis revealed a pronounced preference for local instructors due to their authentic Sri Lankan atmosphere, cultural insights, and detailed anatomical explanations. Tourists particularly appreciated the use of traditional Sanskrit terms and the opportunity to learn about Sri Lankan culture and history through yoga practice. Compared to foreign instructors, local instructors were perceived as more authentic and enriching, while sessions led by foreign instructors were often seen as routine and lacking cultural depth. However, local yoga instructors face several significant challenges. The need for recognized certifications is a primary concern, as it impacts their credibility and ability to attract international tourists. Language proficiency, particularly in English, poses another barrier, affecting their ability to communicate effectively with foreign tourists. Other logistical and professional challenges include limited access to ongoing professional development opportunities and competition with more established foreign instructors. To enhance the role of local yoga instructors and boost Sri Lanka's appeal as a premier wellness tourism destination, the study recommends several strategies. These include developing standardized training programs with recognized certifications, implementing initiatives to improve English language proficiency, and encouraging the integration of cultural elements into yoga instruction. These strategies can help local instructors overcome existing challenges, enhance tourist satisfaction, and promote Sri Lanka as a unique destination for yoga and wellness tourism, thereby fostering repeat visits and positive word-of-mouth.

**Keywords:** Culture, Local instructors, Tourist satisfaction, Wellness tourism, Yoga.

## **Navigating the Future of Online English Language Teaching: A Case Study on Perceptions and Challenges in the Post-Pandemic Era**

**Anwer, M.A.S.<sup>1\*</sup>, Jayawardana, H.M.H.N.M.<sup>1</sup>**

<sup>1</sup>*Department of English, Amazon College and Campus, Sri Lanka.*

*safanwer9203@gmail.com*

*harinijayawardane@gmail.com*

The shift to online learning has notably transformed pedagogical practices and learning experiences in English Language Teaching (ELT). This qualitative case study investigates the perceptions and challenges associated with online ELT in the post-pandemic era, aiming to guide the development of more effective online learning environments. Conducted at a private campus, the research involved document analysis, unstructured questionnaires, and semi-structured interviews with six lecturers and 30 students from the English Language Education Study Program. The analysis of qualitative data was carried out through thematic analysis, a method used to identify, analyze, and report patterns (themes) within the data. This involved coding the data to find recurring themes and then categorizing these themes to draw comprehensive insights. Key themes identified included flexibility, accessibility, learner engagement, and assessment objectivity. The findings reveal that online ELT has significantly improved flexibility and accessibility, enhancing learners' self-confidence and fostering self-directed and reflective learning through structured digital presentations. Students appreciated the convenience and the ability to manage their learning schedules, which positively impacted their motivation and engagement. However, several challenges persist. Lecturers face difficulties in maintaining student engagement and providing effective feedback online, with some students remaining passive during sessions. Additionally, issues related to the objectivity of online assessments and the technological divide pose significant obstacles. These challenges highlight the need for targeted strategies to address engagement issues, enhance feedback mechanisms, and bridge the technological gap. Despite these challenges, there is potential for improving online ELT. A powerful mechanism to navigate the future of online English Language Teaching involves the integration of interactive technologies and adaptive learning platforms. These technologies can provide personalized learning experiences, immediate feedback, and more engaging content, thus addressing engagement and feedback issues. Furthermore, investing in digital literacy and ensuring equitable access to technology are crucial steps in bridging the technological divide. The study emphasizes the importance of addressing these concerns to develop more dynamic and inclusive online ELT environments in the future. Implementing robust strategies and utilizing advanced technologies can transform online ELT into a more effective and engaging learning experience, ensuring that both educators and learners can thrive in the digital landscape.

**Keywords:** Accessibility, Assessment objectivity, Digital literacy, Engagement, Feedback mechanisms, Flexibility, online learning, Self-directed learning, Technological divide.

## **Impact of Digital Libraries on Academic Research**

**Chandrasena, S.<sup>1\*</sup>**

*<sup>1</sup>National Centre for Advanced Studies (NCAS), Sri Lanka*

*[schandrasena@gmail.com](mailto:schandrasena@gmail.com)*

The advent of digital libraries has profoundly transformed the landscape of academic research, offering unprecedented access to vast repositories of information and reshaping the way scholars interact with knowledge. This research investigates the impact of digital libraries on academic research, focusing on how they influence research productivity, accessibility to resources, and the quality of scholarly work. The study also examines the challenges and limitations associated with digital libraries. The research explores how digital libraries contribute to the democratization of knowledge by enabling global collaboration and providing equitable access to information resources. A comprehensive mixed-methods approach was employed to thoroughly explore the diverse impacts of digital libraries on academic research. This methodology combined rigorous quantitative data analysis with rich qualitative insights, ensuring a holistic understanding of the subject. The quantitative component was conducted through an extensive survey involving 250 researchers from a wide range of academic disciplines. This survey thoroughly examined various aspects of digital library usage, including usage patterns, levels of satisfaction, and the perceived benefits that digital libraries offer to researchers. In parallel, the qualitative component of the study involved conducting in-depth interviews with a carefully selected group of 20 individuals, including researchers, librarians, and academic administrators. These interviews were designed to delve deeply into the personal experiences and professional perspectives of participants, offering a nuanced understanding of how digital libraries influence their research processes, decision-making, and overall academic productivity. The findings from this mixed-methods approach reveal that digital libraries play a crucial role in significantly enhancing research productivity. They do so by providing seamless access to a vast array of resources, such as scholarly journals, academic books, and multimedia content, which were previously constrained by geographical limitations and financial barriers. However, the study also highlights some challenges. Despite the widespread availability of digital libraries, a digital divide persists, particularly in regions with limited internet access or inadequate digital infrastructure. This gap restricts the full potential of digital libraries in promoting equitable access to information. Additionally, the vast amount of information available in digital libraries can lead to information overload, making it challenging for researchers to filter and identify the most relevant resources efficiently. The research also notes concerns about the long-term preservation of digital content and the reliability of digital archives, which are crucial for maintaining the continuity of academic research. The study underscores the transformative impact of digital libraries on academic research, enhancing accessibility, productivity, and the quality of scholarly work. However, it also calls for addressing the challenges of digital equity, information overload, and preservation to fully realize the benefits of digital libraries. These findings have important implications for academic institutions, policymakers, and library administrators in developing strategies to optimize the use of digital libraries in supporting academic research.

**Keywords:** Academic research, Digital divide, Digital libraries, Digital equity, Information access, Knowledge preservation.



# **LINCOLN INTERNATIONAL MULTIDISCIPLINARY CONFERENCE - 2024**

IN COLLABORATION WITH  
**GAMPAHA WICKRAMARACHCHI UNIVERSITY OF  
INDIGENOUS MEDICINE**



[www.lincoln.edu.lk](http://www.lincoln.edu.lk)