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Table of Content

Table of Content	3
A Review of Capital Structure Theories	17
A Study on Brand Equity Antecedents on Purchasing Intention for Application Based Cement (ABC) Brands in Sri Lanka.....	18
Assessing the Impact of Causes for Low Labour Productivity in Garment Industry in Katunayake Free Trade Zone	19
Board Independence and Corporate Performance	20
DETERMINANTS OF CAPITAL STRUCTURE: EVIDENCE FROM LISTED MANUFACTURING COMPANIES IN SRI LANKA.....	21
Determinants of Fertilizer Demand: Evidence from Sri Lanka	22
Determinants on Creativity towards Organizational Innovations: An Exploration on Literature Review.....	23
Devaluation of Yuan and its impact on Emerging Economy	24
Ex-Dividend Day Stock Price Behaviour - Evidence from Colombo Stock Exchange	25
Factors Effect on Employee Turnover Intention: Evidence from Leasing Industry in Sri Lanka.....	26
Factors of Job Satisfaction of Ayurvedic Doctors	27
Impact of Customer Orientation Practices in Supply Chain, on Supply Chain Performance..	28
Impact of Job Perception on Career Satisfaction of Employees.....	29
Impact of Total Quality Management on Organizational Performance: with reference to Apparel Industry, Sri Lanka.....	30
30	
Impact of Working Capital Investment Policy on Firm Value in Sri Lankan Manufacturing Companies.....	31
Impulse Buying Behavior: Conceptual Evolution	32
Investigating the Relationship between Customer Retention and Business Performance in XYZ Airlines	33
Male And Female Cossumers Buying Decision Differences Towards Fashionable Garments; A Special Refernce Of Southern Province Sri Lanka.....	34
Microfinance and poverty alleviation: Case of the Northern Province in Sri Lanka.....	35

Model to assess factors influencing performance of customer orientated supply chains: The manufacturing firms' perspective	36
Moderating And Mediating Contexts In Celebrity Endorsement On Brand Attitude: A Literature Review For Future Research Studies	37
Research Paper On 'Impact Of Organizational Factors Affect On Retention Of Indirect Cadre Employees In Apparel Industry'	38
Strategic Management and Sri Lankan Women Entrepreneurs	39
The challenges of Last mile delivery in Indian Ecommerce Scenario.....	40
The Practice of Accounting Services Outsourcing and Firm performance in Nigerian Small and Medium Enterprises (SME's)	41
The Working Capital Management Practices of Small and Medium Enterprises (SMEs) in Sri Lanka.....	42
Usage of Colors in Advertising Industry in Sri Lanka	43
A comparative analysis of Juastin Pieris Deraniyagala and the French Cubist and Fauvist Paintings.....	45
L.Bandaranayaka	46
A discussion on the Irony Concept of Literature	47
Study on the Sinhalese Verb System in Middle Sinhalese Era (8c. AD -13c. AD) with Reference to Classical Sinhala Literary Text "Buthsarana"	48
A reading 'Gangnam Style' with the key word 'gangnam'	49
KIM JIN-RYANG	49
A study of Pārājikās from the perspective of human rights.....	50
A study of the Language variety used by the Afro- Sri lankan Community of Sri Lanka. (Living in Puttalam, Kalpitya and Trincomalee)	51
A study on the Evolution of the Bhavanga Citta.	52
An attitudinal study on perceptions of group work when teaching English as a second language in Sri Lanka	53
An Explication of Behavioural Impediments Vis-a-Vis Meditation: A Buddhist Perspective	54
Are we different from you: changing facets of Kaffir community in Sri Lanka	55
Athenian 'Cleruchies' of the 5th century BCE: An analytical study of colonization as a political and military strategy of the Athenian imperial administration.	56
Attitudes of teachers of English in higher education towards peer observation of teaching ...	57
Awareness of Factors Affecting Listening Comprehension: A Study Based on English as Second Language Learners	58
Buddhism for International Peace.....	59

Conducting Spoken Tests are still a big challenge in most of the ELT scenarios	60
Detective Deconstructed: Miss Marple as a subversion of the traditional Detective discourse	61
Effectiveness of ELTU Course for First Year Undergraduates in Accomplishing L2 Requirements	62
Effectiveness of English Language Teaching in Government Schools in the Gampaha District	63
Error Analysis on the Usage of Prepositions by the ESL Learners in Writing Tasks	64
Filtration of literary texts in the case of an intermediate language: A study based upon French literary works translated into Sinhalese.	65
Fine arts specified in <i>Kavsilumina</i>	66
Friendship, Justice and Sri Lanka's Armed Conflict: A Study of Somaratne Dissanayake's <i>Saroja</i>	67
GABRIEL OKARA'S POETRY FUNCTIONS AS A VEHICLE OF AFRICAN IDENTITY.	68
Gender sensitivity in Human security definition	69
Gira, Hansa messenger poetries on the basis of ideological political conflict in the kotte era.	70
Globalize Economy and Sinhala Language Identity.....	71
History, Identity, and Herstory: A Simultaneous Reconstruction and Deconstruction of the Dravidian Movement	72
"Hoos' and Hurrahs in Jumbo vs. Betel Final"	73
How Indians are using Social media for news consumption: A study	74
How Sri Lankan students gain the proficiency in correct Chinese pronunciation.....	75
Impact of Social Media on Mainstream Journalism	76
Impact of Testing in the English Language Teaching Classroom	77
Impact of the proficiency in English language on the students' performance in their main subjects.....	78
Individual Health care and vinaya regulations in Buddhism.....	79
Integrating Computer Assisted Language Learning in the English as a Second Language Class Room	80
Language matters: an analysis of the language of disability within selected political speeches of the elections of 2015 in Sri Lanka.	81
Learning as a Factor of Influence in Fashion.....	82

Life Narratives of the Lankan Other: An Exploratory Study of the Jaffna Community in ‘Project I Am’	83
Linguistic Constraints on Tamil-English Code-Mixing	84
Literature as an inspiration for scientific thinking: An Investigation	85
Malayalam Translations of the Qur’an: A Methodological Analysis	86
Methods Followed in Translating Drama Songs	87
Morphology and Utility today of the 18 th century Temple on pillars (<i>TāmpitaVihāras</i>) of Sri Lanka.....	88
Negombo Fishermen’s Tamil and Sri Lanka Gypsy Telugu: Two Sinhala-Influenced Dravidian Minority Dialects from the Sinhalese Heartland	89
Origin of Classical Sanskrit	90
Perspectives on Plagiarism in Asia: An exploratory comparative study in Indonesia and Sri Lanka.....	91
Poetics and Noetics in the <i>Therī gātā</i> in terms of their presentation of ‘Transience’	92
Portraiture in the Buddhist Image House.....	93
Positive Aspects of Indian Classical Music on Child Personality Development (Psychological Approach)	94
Practicing Four Noble Truth and Stress Management on Buddhist psychology.....	95
Pronunciation Problems in French: A Case Study of First Year Students at University of Kelaniya, Sri Lanka	96
Poetics and Noetics in the <i>Therī gātā</i> in terms of their presentation of ‘Transience’	97
Representations of Vithiya Sivaloganathan’s Rape, Murder and Protests against Its Violence	98
Religion of Humanity: A Study on the Jagannath Cult	99
Should We Say ‘This Is Wrong’? ; Impact of Explicit Corrective Feedback on Language Accuracy	100
Socialist Realism in Bharatendu Harishchandra’s Play ‘ <i>Bharat- Durdasha</i> ’	101
Some Observations on Personifying Inanimate Nouns in Sinhalese Language	102
Studying English Literature at the undergraduate level as opposed to studying it for Advanced Levels.....	103
Teachers’ Perception of Language Anxiety in the ESL Classroom	104
Tendency of Learning Chinese as a Foreign Language among Sri Lankan University Students	105
The Afrikan Sri Lankans: Culture, Community and Continuity.....	106
The Brahmins (Temple priests) - A socio – cultural and linguistic perspective.....	107

The concept of “Bhramara” in Hindi and Pali Literature	108
The Hunger Games: A Comparative Analysis of the Novel and the Adaptation-The Depiction the Theme of Power in the Two Media	109
The impact of gender in learning English as a Second Language; A case study in the faculty of Management at University of Ruhuna.....	110
The impact of the qualities of the creative communication used in the advertisements for acknowledging the society regarding the environmental issues	111
The importance of context sensitivity of Basic Interpersonal Communication Skills (BICS) in Content and Language Integrated Learning (CLIL) in Bilingual Education.....	112
The influence of English usage for creation of new Sinhalese words	113
The Influence of Writing Skills on Spoken Skills of Undergraduates: A Study on the Improvement of Oral Fluency of Engineering Students	114
The Pioneer revelation of Mudliyar W. F. Gunawardhana about the grammatical rules and strategies of Sinhala language.....	115
The Practical Values of Vāstu Techniques as depicted in Sanskrit Vāstu Texts.....	116
The Rape, the Reason, the Response: A Critique of the Representation of Rape	117
The Significance of Animal Metaphors: Émile Zola’s <i>Thérèse Raquin</i> and Patrick Suskind’s <i>Perfume: The story of a murderer</i>	118
The strategies used by the translators to depict the French cultural aspects into Sinhala	119
The force behind the translation of pali Milindapanho into Sinhala	120
The use of Upamā as a partial theory of knowledge in early Buddhism.....	121
Understanding and Appreciation of Poetry in the light of Eco-Criticism	122
මධ්‍යකාලීන හින්දී කවි කබීර්දාස් සහ යථාර්ථවාදය	123
Using Windows Speech Recognition Tool to Improve English Speaking Skills of Undergraduates Learning English as a Second Language.....	124
Visual clutter caused by the outdoor advertising in the sub-urban areas of Sri Lanka.....	125
ආදි බුදුදහමේ විඤ්ඤාණ සංකල්පය හා යෝගාවාර විඤ්ඤිතානුභාව අතර තුලනාත්මක අධ්‍යයනයක්	126
අනුරාධපුර යුගයේ කාන්තාවට හිමිවී තිබූ සමාජ තත්වය පිළිබඳ අධ්‍යයනයක් (සීගිරි ගී ඇසුරින් කෙරෙන විමර්ශනයකි).....	127
A pilot study on virtual patients: Understanding student experiences to facilitate learning .	129
Assessment of Nutritional Status of Adolescents in Kandy district- Sri Lanka	130
Assessment of possible social and entomological risk factors affecting transmission of dengue in the District of Gampaha	131

Acknowledgements: National Research Council (NRC TO 14-04) is gratefully acknowledged.	132
Awareness among Sri Lankan first time mothers' informal identification of newborns' hearing difficulties and /or hearing disabilities by themselves	132
Cardioprotective and cardiotoxic effects of flavonoid quercetin on rat embryonic heart-derived female H9c2 cells.....	133
Characterization of Anopheline larval habitats and species composition of aquatic macro-invertebrates in Trincomalee District, Sri Lanka.	134
Community based health promotion intervention to improve Nutritional status of children less than five years in rural community in Sri Lanka.....	135
Comparison of gastric emptying of a solid meal with a semi-solid meal using real-time ultrasonography in a cohort of healthy individuals.....	136
Determination of appropriate positioning of the ovitraps for dengue mosquito surveillance	137
Differentiation of male germ cells from human umbilical cord blood derived mesenchymal stem cells.....	138
Effectiveness of early stretching exercises for range of motion of the shoulder joint, state of axillary scar and quality of recovery in burnt patients admitted to the Burns unit of the National Hospital of Sri Lanka	139
Emerging Spatio-Temporal Trends in Dengue Incidence in Poojapitiya Medical Officer of Health (MOH), Central province, Sri Lanka	140
Epidemiology and clinical profile of cobra (<i>Naja naja</i>) envenomation in wet zone of Sri Lanka.....	141
Explore Factors effecting elevate the Relapse Rate among Drug Users in Sri Lanka: Qualitative study	142
Gamma- ray irradiation as a method for sterilization of males of <i>Aedes albopictus</i> (<i>skuse</i>) for its control through Sterile Insect Technique (SIT)	143
Impact of a native 'natural spice mixture' on selected biomarkers, reduction of excess weight in purposely selected overweight/obese females.	144
Individual risk factors of snakebites in Sri Lankan community	145
Larvivorous Potential of Four Fish Species Against Dengue Vectors in The Kandy District of Sri Lanka.....	146
Performance of Sinhala speaking normative hearing children on Monosyllabic – Trochee – Polysyllabic Test (MTP)	147
Phenotype distribution of human serum paraoxonase 1 in a cohort of healthy Sri Lankan individuals.....	148
Quantification of mucosal eosinophils in histologically normal ileal, colonic and rectal biopsies	149

Total phenolic content of leaf, stem, root and flower of <i>Daturametel</i>	150
‘PATH FINDER’ Application for android	152
A Plug-in to Boost the Behaviour of a Rule-Based Expert System More Like a Human	153
A Smartphone Based Traffic Information System (AFromT).....	154
A Study on Loan Performance Using Data Mining Techniques	155
1A study on the factors influencing supply chain quality management practices and their impact over a firm’s supply chain performance	156
Abstract on Global Knowledge Sharing for Implementing a Digital Manufacturing Lab (FabLab) for Rural Development in Sri Lanka	156
Acidification and neutralization potentials of rainwater at University of Peradeniya.....	158
Adoption of Green Information Technology in Sri Lankan Banks	159
An empirical study of domestic electricity demand in Sri lanka	160
An Evaluation on Factors Influencing Venom Yield in Spectacled Cobra (<i>Naja naja</i>) in Sri Lanka.....	161
Analyzing utility of waiting lines: a case study	162
Antibacterial activity of extract of leaves of <i>Atalantia ceylanica</i> (Yakinaran)	163
Antifeedant and antifungal activity of heartwood extracts of tea cultivars against <i>Glyptotermes dilatatus</i> Bugnion and Popoff and <i>Fusarium</i> sp.....	164
Antioxidant active novel secondary metabolite from endolichenic fungus, <i>Penicillium citrinum</i> , inhabiting the lichen, <i>Pamotrema</i> sp. available in Sri Lanka.....	165
Antioxidant activities of phenolic extracts of guava leaf, coconut cake, rice bran and sesame cake obtained using subcritical water and ethanol:water (70:30 v/v).....	165
Application of Witten-Bell Discounting Techniques for Smoothing in Part of Speech Tagging Algorithm for Sinhala Language	166
Assessing toxicity of selected textile industry effluents reaching Kelani River using a plant based bioassay.....	168
Bioactive compounds and in-vitro antioxidant potential of mango (<i>Mangifera indica</i> L.) flesh, peel and seed.	169
A.Kuganesan ² , G.Thiripuranathar , A.N.Navaratne ³ , P.A.Paranagama ⁴	169
Bio-Chemical Evaluation of Selected Sri Lankan Tea (<i>Camellia sinensis</i> L.) Cultivars and Accessions for Production of Green Tea.	170
Catalytic decarboxylation of rubber seed oil to produce hydrocarbons	171
Challenges faced by Health Right Practices in Tea Plantation Sector Community of Sri Lanka	172

Characterization of trace metal concentration (Al, Fe, Mn, Cu, Zn, Pb) of bulk precipitation in kandy district, Sri Lanka.....	173
Conceal Communication via MP3.....	174
Connecting the Interdisciplinary Dots with Water.....	175
Courtship behaviour of Smith's tiger spider <i>Poecilotheria smithi</i> (Arachnida:Theraphosidae) in the wild.....	176
Cytotoxic effects of α -Eleostearic acid-rich fat extracted from seeds of bitter melon (<i>Momordica charantia</i>) on Vero 76 cells.....	177
Deep Unsupervised Pre-trained Neural Network for Human Gesture Recognition.....	178
Determination of current lead concentration in human blood by human biomonitoring in selected Sri Lankan populations.....	179
Determination of Nutrient composition of domestic and commercially available coconut milk preparations.....	180
Determining Critical Factors of Consumers' Adoption of Internet Banking.....	181
Development and Validation of e-Content on "Thermodynamics" to Instruct Engineering Physics to Undergraduates.....	182
Development of a new biofertilizer system using <i>Gliricidia</i> plants grown in Sri Lank.....	183
Development of Environmentally Friendly Cellulose Containing Packaging Products From Waste Materials.....	184
Different isolates of <i>Bacillus subtilis</i> from gastrointestinal tract of wild caught black tiger shrimp, <i>Penaeus monodon</i> to improve a locally produced probiotic/bioaugmenter for controlling pathogenic <i>Vibrio</i> in Sri Lankan shrimp culture systems.....	185
Effect of alum in combination with vacuum packaging in extending the shelf life of Embul banana.....	186
Effect of microbial exudates on breaking dormancy of soil microbial seed bank.....	187
0	187
Effect of usage of mobile phone in trouser pocket on quality of semen parameters.....	188
Electrodeposition of (n-type) cadmium zinc sulphide thin film semiconductors for photovoltaic applications.....	189
Electro-deposition of Cadmium Zinc Sulphide at High Cadmium Ion Concentration, Low Zinc Ion Concentration, High Temperature and Low pH.....	190
Eliminating the storage wastage of CCTV cameras by motion detection.....	191
Evaluation of Essential Oil content and composition of <i>Ocimum</i> Species in Five Districts of Sri Lanka.....	192
FEM analysis of backfilling sequences on the behaviour of gravity type retaining wall.....	193

Growth of CdS and CdTe thin film semiconductors and fabrication of CdS/CdTe solar cells	194
Hardware Implementation of a Hidden Markov Model Based, Speaker Independent, Continuous, Sinhala Speech Recognition System	195
Higher order Markov chain approach in modeling Cricket Scores.	196
Hydrochemical analysis and evaluation of groundwater quality in Rathupaswala area in Sri Lanka.....	197
ICT Skill Proficiency of Healthcare Professionals in Western Region of Sri Lanka	198
In Vitro Inhibitory Potentials of Alpha Amylase and Alpha Glucosidase in <i>Tricosanthes Dioica</i> , <i>Moringa Oleifera</i> And <i>Averrhoa Carambola</i>	199
Increase the performance of apparel industry through the application of lean tools and techniques	200
Information Technology Outsourcing in Mobile Telecommunication Industry in Sri Lanka	201
Institutional robustness averts Hardin’s tragedy of the commons in the community-based beach seine fisheries in Sri Lanka.....	202
Investigating the bioactive compounds of endolichenic fungus <i>Hypoxylon anthochroum</i> isolated from the lichen, <i>Pseudocyphellaria</i> sp.....	203
Isolation of bioactive secondary metabolites from the endolichenic fungi, <i>Neosartorya</i> sp. inhabiting the lichen <i>Parmotrema</i> sp. in Sri Lanka	204
Microbiological study of ready-to-eat foods of vegetable origin	205
Modelling real world problems with Multivariate Distributions: An application to All Share Price Index and related financial indices	206
Molecular Phylogeography and Clinical manifestations of Russell’s viper (<i>Daboia russelii</i>) in Sri Lanka.....	207
New Bioactive poliketide from endolichenic fungus, <i>Curvularia trifolii</i> , inhabiting the lichen, <i>Usnea</i> sp. collected from Haggala Botanical Garden.	208
Observation of interface modification of electrodeposited p-Cu ₂ O thin films in an aqueous electrolyte.....	209
Optimization for Rock Phosphate Solubilization by Phosphate-Solubilizing Bacteria isolated from <i>Oryza Sativa</i> Rhizosphere	210
Optimization of reverse transcriptase PCR for selected hepatic cytokines in Wistar Rats ...	210
Optimizing the Profit Using Linear Programming:A Case Study on a Concrete Yard of a Government Corporation in Sri Lanka	213
Password Security Concerns and Practices of Online Account Users: Case Study in Gampaha District, Sri Lanka.....	214

Phenolic content and shelf life of commercial virgin coconut oil and copra oil	215
Phytoremediation potential of <i>Talinum triangulare</i> (Ceylon spinach) towards Cr in different soils	216
Polycyclic aromatic hydrocarbons in water bodies and sediment around kerawalapitiya and kelanitissa power plants of sri lanka - preliminary study	217
Potential of using the Solar Chimney Dryer for Small Scale Industries in Sri Lanka.....	218
PRELIMINARY STUDY OF THE WATER QUALITY AND PLANKTON ABUNDANCE IN BATTICALOA LAGOON, SRI LANKA.....	219
Qualitative phytochemical analysis and phenetic variation of <i>Piper</i> species in Sri Lanka ...	220
Real Time Emotion Based Music Player for Android	221
Repellent Activity Of Mosquitoes To Herbal Formulations.....	222
Sales Prediction with Data Mining Algorithms	223
Seasonal water level fluctuation, habitat alteration and colonization of marginal benthic fauna in irrigation reservoirs in the Kala Oya River basin in Sri Lanka.	224
Selenium in rice consumed by Sri Lankans	225
Stable isotopic characterization and baseline monitoring on mangrove ecosystem in Negombo lagoon using carbon and nitrogen stable isotopes.....	226
Study of Mobile Learning Activities Amongst Undergraduates	226
The effect of moisture content on the soil organic matter decomposition in Muthurajawela marsh soil – a preliminary study.....	228
Thermal stability of phenolic compounds in coconut cake and its stabilizing effect on stripped sunflower oil	229
Effects of the Cosmological Constant on Energy and Angular Momentum of a Particle Moving in a Circle with Respect to the Schwarzschild - de Sitter Metric in Comparison with the Schwarzschild Metric	230
Use of erythrocytic nuclear abnormalities of feral fish species as biomarkers for assessing potential genotoxic impacts in Kelani River.....	231
Use of molecular features for identification of isolated fungal pathogens of big onion damping off disease and <i>Trichoderma</i> spp. isolated from soil	232
Causes and Directions of Elephant Migration, A Geographical Survey: Yala National Park	234
2015 General Election and Political Cartoons	236
A Critical Evaluation of Pedophilia from a Biopsychosocial Perspective	237
A sociological study on puberty rites effects on self control in Sri Lankan society.....	238
A Study into the Implementation Related Problems of Bilingual Education in Sri Lanka .	239

A Study of The Social Role of “Omens” in Rural Cultural Sri Lankan Communities (With special reference to Mirigama secretariat division in Gampaha district)	240
A study on author names authority control related to online public access catalogue (OPAC) of national library, Sri Lanka	241
A Study on Awareness of Stock Market investors in Sri Lanka.....	242
A Study on Community Based Organization and Rural Development (With Reference to Warakapola Divisional Secretariat)	243
A study on Multiple Intelligence of school students in Sri Lanka (In Gampaha District)	244
A Study on SANASA Banking Service and Economic Activities of Rural People (With Reference To Neluwa Divisional Secretariat)	245
A Study on the Impact of Adverse (pollution) Media Messages on Antenatal/Prenatal Groups”	246
A Study On The Awareness Of The Public On Reporting Fundamental Rights.....	247
Violations (A Case Study of Mudungoda Grama Niladhari Division inGampaha Divisional Secretariat)	247
A study on the influence of Electronic Media towards criminal behavior within the process of crime reporting (with reference to welikada prison).....	248
A study related to Information Services in respect of the Coconut Industry of Sri Lanka and the manner in which the relevant Industrialists use such services.	249
Accountability in Local Government Institutions of Sri Lanka: A Study of the Hali-Ela Pradeshiya Sabha	250
An Evaluation of Transport Related Government Web Sites in Sri Lanka	251
The Colombo International Book Fair (CIBF) has been, the Sri Lanka’s premier national the to increase the customer satisfaction.....	252
Availability of resources in National schools and Provincial schools of NWP for providing a better educational service.....	253
Awareness and usage of E-library services by members of academic staff in University of Kelaniya	254
Ayathurai Santhan’s <i>The Whirlwind</i> as a writing of Victimhood.....	255
<i>Brhājātaka</i> and the Making of Horoscopy	256
Changes of Physical Environment in the Areas of <i>Pinus</i> vegetation in Sub Mountain Grass Lands: Special Reference to Imbulpe Divisional Secretariat Division in Balangoda	257
Climate Change Adaptation in Water Management for Agriculture: A study based on Suriya Ara, Wijithapura, Usgala in Monaragala District.	258
Colour associated thermal perception: Manifestation and contributing factors with reference to red and blue.....	259

Comparative analysis on the impact of external compulsions and domestic politics of Sri Lanka during the Human Rights allegations issues of it in 1983 and 2009.....	260
Competitive Emergence of China and India and Autonomous Existence of Sri Lanka.....	261
Conceal Communication via MP3	262
Cultural Validation of the Couples Satisfaction Index – 32 among Sri Lankan Adults.....	263
Cyber-crime and Law (Special Reference to Sri Lanka and India).....	264
Decomposition analysis of poverty in Sri Lanka: 1990-2010	265
Demarcating Problem of Reference Boundary for Coastal Zone and Shoreline: The Case of Sri Lanka.....	266
A.G.Amarasinghe	266
Determinants of Foreign Direct Investment in Nigeria (1970-2014)	267
Determining the Violation of section 31(1) of the National Authority on Tobacco and Alcohol Act: Regarding Alcohol Products	268
Development of a New Biofertilizer System Using Gliricidia Plants Grown in Sri Lanka ..	269
Development of Built Environment and Its Implication on Flood Risk in Gombe Metropolis, Nigeria.....	270
Effect of the Body Mass Index on Academic Performance of Undergraduates: With Special Reference to the University of Kelaniya, Sri Lanka.....	271
Effect of tourism on biodiversity in the coastal environment; A study of Bentota area in the south–western coastline in Sri Lanka	272
Ethnic Triumphalism as a Bounded Foe of Ethnic Integration (Case Study of Sri Lanka)...	273
Exam Stress of the Grade Five Students and Types of Personality	274
Examining the role of “jus gentium” (Law of the Nations) during Roman Empire	275
Exposure of Sexually Abused Adolescents to Societal Judgmental Attitude in Bauchi Metropolis, Nigeria.....	276
Factors Associated with Academic Performance of Students of Faculty of Social Sciences, University of Kelaniya - A case study	278
Gender Dimension of Subjective Wellbeing in Fishing Community (A case study of Rekawa fishing village in Sri Lanka)	282
Global Threats to the Political Security of Sri Lanka (Reference to the Post War Period)...	283
Happy Family Life through Buddhist Family Therapeutic Techniques	284
Home Stay Concept in Sri Lanka and its Impacts (With special reference to <i>Padavigampola</i> Home Stay Village.).....	285
National Security as a Pretext for Securing US Hegemony after 9/11	287
New Dimensions of Expansion of Evangelical Groups in Sri Lanka.....	288

Objectives and the audience of regional radio of Sri Lanka:A Study of “Rajarata and Wayamba handa” Radio.	289
Plight of Women as reflected in Bapsi Sidhwa’s Novels Ice Candy Man and The Bride.....	291
Pornographic blogs spreading in Social network (With Special attention to Sinhala medium blogs).....	292
Potentials of Developing Religious Historical Museum in Sri Lanka.....	293
Preschool teachers’ perception on use of play based activities for language skills development	294
Promoting Ethical Recruitment Practices in Labour Migration; Sri Lankan Legal Perspective	295
Provision of Internet access among public libraries in Sri Lanka: Special reference with Tsunami reconstructed Public Libraries in South Coastal area.	296
Radio “Dambana”: A new experiment of Community radio in Sri Lanka	297
Re- styling civilizations: Understanding changing repertoire of elegance in male dress fashions.	298
Recreating pre historic environment based on the spread of land snails and fresh water snails.	299
Reflection of ‘access’ in ICT4D evaluation: The case of Nenasala telecenter initiative in Sri Lanka.....	300
Repatriation of Sri Lankan Refugees in South India	301
Representation of femininity through the Śākta texts (<i>Śilpa Prakāśa</i> and <i>Śilparatnakośa</i>) of Early Medieval Odisha	302
Re-structuring Education for Social Cohesion- Sri Lankan disclosure	303
Semantics of Region and ASEAN	305
Sexual Deviance and Sexual Violence in the Vālmīki Rāmāyaṇa	306
SOCIAL AND ECONOMIC CONSEQUENCES OF ROAD TRAFFIC INJURY IN SRI LANKA.....	307
Social impact Management with regard to the kidney disease in Sri Lanka	308
Spatial and Temporal Variation of Drought Hazard in the North Central Province of Sri Lanka.....	309
State and Non-State Polities: A Historical Study of Early Medieval Tribal State Formation in Central India.....	310
A study of blessings (Sethkam) composed connected to water in order to get rain in Nuwarakalawiya, Sri Lanka.....	311
Tārā: From Attendant to Bodhisattva Changing Role of the Feminine	312

The ancient manuscript available in Temple Libraries in Marata district	313
The Difference of concepts of the societies of Pre-Media and Post-Media: Absence of a moral and ethical justice in Sexuality in online media society.	314
The human effects on dry mixed evergreen forest cover surrounding the Village-based irrigation system in Sri Lanka.....	315
The Influence of Animal Visibility on Visitor Experience: with special reference of Dehiwala Zoological Garden, Sri Lanka.....	316
The progress of the Participatory Development entries in Sri Lanka.....	317
The Relationship between Public Interest And Structural Aspect of Sport News Reporting	318
The use of concept of beauty in fashion advertisements for persuading customers and the semiotics included in it (An analysis conducted based on 04 fashion jewelry advertisements with relevance to electronic media)	319
Traditions of Living Histories: Modular Communal Contexts as Learning Labs for Design Education	320
Prasanna Pitigala Liyanage, Shauri Hettiarachchi ²	320
United Nations and Rights of Child, Focus: Syrian Refugee Children	323
Urban Behavioural Patterns Which Effect on Non Communicable Diseases (NCDs): Case Study of Pattiwila area, Biyagama Divisional Secretariat Sri Lanka	324
E.A.D.Anushka Gunapala.....	324
Use of Electronic Media for Academic Purposes among the University Students: special reference with faculty of social sciences, University of Kelaniya.....	325
Use of Electronic Resources For Buddhist Studies: A Case Study	326
Vidyalankara Pirivena of 1940s; is it an alternative monastic model?.....	327
Web GIS Based Data Collection System for Environmental Managers.....	328
WOMEN & HUMAN RIGHTS VIOLATIONS IN INDIA:	329
Focus on Manipur and Odisha	329
Women in Sri Lankan Historiography	330
ශ්‍රී ලංකාවේ සහ අප්‍රදේශ මගින් කාබනික පොහොර නිෂ්පාදනය සඳහා සිදු කරන ආයෝජනය කෙරෙහි ලාභයේ බලපෑම.....	332
ශ්‍රී ලංකාවේ පැවති මුතු කර්මාන්තය.....	333
(පෘතුගීසි, ලන්දේසි, ඉංග්‍රීසි යුග ඇසුරින්)	333
ගෝණගිරි රජමහා විහාරයේ පුස්තකාල පොත් එකතු පිළිබඳ ග්‍රන්ථ විද්‍යාත්මක අධ්‍යයනයක් (අනුරාධපුර දිස්ත්‍රික්කය ඇසුරෙන්)	334
Author Index	335

A Review of Capital Structure Theories

D.K Yapa Abeywardhan¹

Capital structure is still a puzzle among finance scholars. So far, researchers have not yet reached a consensus on the optimal capital structure of firms by simultaneously dealing with the agency problem. Purpose of this study is to review various capital structure theories that have been proposed in the finance literature to provide clarification for the firms' capital structure decision. Starting from the capital structure irrelevance theory of Modigliani and Miller (1958) this review examine the several theories that have been put forward to explain the capital structure.

Three major theories of capital structure emerged over the years following the assumption of the perfect capital market of capital structure irrelevance model. Trade off theory of capital structure assumes that firms have one optimal debt ratio and firm trade off the benefit and cost of debt and equity financing. Pecking order theory (Myers, 1984, Myers and Majluf, 1984) assumes that firms follow a financing hierarchy whereby minimize the problem of information asymmetry. But neither of these two theories provide a complete description why some firms prefer debt and others prefer equity finance under different circumstances.

Another theory of capital structure has introduced recently by, Baker and Wurgler (2002), market timing theory of capital structure. This theory explains the current capital structure as the cumulative outcome of past attempts to time the equity market which implies that firms issue new shares when they perceive they are overvalued and that firms repurchase own shares when they consider these to be undervalued. Market timing issuing behaviour has been well established empirically by others already, but Baker and Wurgler (2002) show that the influence of market timing on capital structure is regular and continuous. So the predictions of these theories sometimes acted in a contradictory manner and Myers (1984) 30 years old question "How do firms choose their capital structure?" still remains.

Key words: Capital structure, Trade off theory, Pecking order theory, Market timing theory

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A Study on Brand Equity Antecedents on Purchasing Intention for Application Based Cement (ABC) Brands in Sri Lanka

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The purpose of this research study was to find out the Brand Equity Antecedents that influence the Purchase Intention of Application Based Cements in Sri Lanka based on David Aaker's well-known conceptual framework. Market share of the Application Based Cement was less in Sri Lanka even though it has variety of favorable factors to the Country. In Sri Lanka, no sufficient researches have been carried out yet to identify, how far brand equity antecedents influence the customers buying behavior of Application Based Cement. Therefore present study is focused on "To what extent antecedents of brand equity will influence on the buying behavior of Application Based Cements in Sri Lanka".

Based on a sample of 251 consumers, Regression analysis, Correlation and One Way ANOVA was used to test hypotheses. The research reveals that brand awareness, brand association, brand loyalty, and perceived quality have a significant influence on purchasing intention of the Application based Cements in Sri Lanka.

The paper suggests that marketers should carefully consider the brand equity components when designing their branding strategies. Further researcher recommended to implement new programs and activities to improve brand equity of Application based Cements by giving priority to overcome the main objectives of the research mainly to reduce the Co2 emission and save the limestone for future generation.

Key words: Brand equity; Purchase intention; Application Based Cement, Consumer Behavior

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Assessing the Impact of Causes for Low Labour Productivity in Garment Industry in Katunayake Free Trade Zone

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Sri Lanka's rate of open unemployment compared with other countries in the Asian region has been considerably high throughout the decades after 1950s. For solving this problem industrialization was promoted, first, following import substitution industries and then, particularly after 1977 adopting a policy of following export oriented industrialization. Most of the industries started under this latter policy were labour intensive industries. Out of them garment industry became the most prominent and absorbed a considerable rate of labour, providing employment particularly for females. Now this industry has become highly competitive since other similar countries such as Bangladesh, Vietnam etc. too have expanded this industry and are competing with the Sri Lankan products in the same western world markets. This study through literature review mainly identified low level of labour productivity as the most significant factor that has greatly reduced the competitive strength of the Sri Lankan garment industry. Accordingly, the study was carried out setting five specific research objectives and condensing them into three major hypotheses. Hypotheses were tested by collecting information taking a convenient sample of 98 operational grade workers in the garment factories in the Katunayake Free trade Zone, through administering a questionnaire for which the validity and reliability were tested with Cronbach's Alpha method. In addition, various secondary data sources were also used. As such a mixed methodology of inductive and deductive was employed in carrying out this study.

The study going to a deeper level identified a number of factors which have contributed to lessen the labour productivity particularly of operational level workers in the industry. Accordingly, certain problems related to factory layout have mainly contributed to reduce the labour productivity. Among other factors that have contributed to reduce productivity, the study found that lesser degree of motivation prevailed among workers, high labour turnover, less improvement of skills, inadequate salary levels and time based payment methods including various harassments and suffering from poor working and living conditions. Finally, study based on its research findings, a set of policy recommendations are given along with suggesting some areas for further research to make the Sri Lankan garment industry to be more competitive.

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Board Independence and Corporate Performance

Suren Peter¹

The large number of dramatic corporate collapses around the world over the last decade, focused attention on the importance of corporate governance to the long term success of a firm. The separation of ownership from management raises a key issue of how to effectively monitor managers to ensure that they act in the best interest of the shareholders and other stakeholders as well. The role of independent directors in improving the effectiveness of control has been the subject of debate in academic literature, especially in the context of a culture of poor corporate governance.

The study explores this issue, paying particular attention on the relationship between corporate board independence and firms' financial performance in Sri Lanka. Using data obtained from Colombo Stock Exchange for the period 2004 through 2009, a sample consisting of fifty non-financial firms were used to assess board independence and their possible effects on firm performance. Data was gathered through published reports and a primary survey. Independence of the board was deconstructed to board composition as measured by proportion of independent directors and proportion of non-executive directors, and board leadership structure as measured by CEO non duality. The firm performance was measured using both financial and market performance indicators. After controlling for industry, firm size and changes in leadership structure, the results indicate support for stewardship perspective, with no convincing evidence to indicate that inclusion of independent directors is associated with improved financial performance. The weak governance structure which could be exemplified by ownership entrenchment, cross sitting of board members and lack of cumulative voting may explain the lack of evidence found. However, the results indicate that inclusion of independent directors is valued by investors and reflected in enhanced firm value.

Key words: corporate governance, board independence, Sri Lanka

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DETERMINANTS OF CAPITAL STRUCTURE: EVIDENCE FROM LISTED MANUFACTURING COMPANIES IN SRI LANKA

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Chosen the capital structure is one of the major influencing factors for the development of each company. Researcher choose listed firms in the manufacturing sector as a sample because the sector has grown faster and number of companies also more than any other sector in Sri Lankan economy. Further, the contribution of the manufacturing sector to total Gross Domestic Product (GDP) also higher and more compare with other companies and manufacturing industry is the important one in the country's economic development. In Sri Lanka, the above research work carried out by some authors in different periods. The purpose of this study is to fill this void to some extent by providing empirical evidence from a developing country's perspective. Here the researcher decided to carry out the research work from 2010 to 2014. It will be tested on the basis of the Trade off theory and pecking order theory. Researcher selected 34 listed manufacturing companies in Colombo stock exchange as a sample for this research purpose. Findings of this study are Tangibility significantly impact on long term debt and Profitability also significantly impact on total debt. The result of this study Profitability and tangibility was confirmed to be relevant determinant for Sri Lankan manufacturing companies, except Non debt tax shield, and Size. Tangibility, Profitability, Non debt tax shield, and Size do not appear to be significantly related to the debt to equity ratio. Through the findings can come to conclusion that Pecking order theory is more relevant to Sri Lankan context. It is largely consistent with the past empirical finding also. Findings should help corporate managers and decision makers to make optimal capital structure decisions.

Key Words: Capital structure, Trade-off theory, Pecking order theory

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Determinants of Fertilizer Demand: Evidence from Sri Lanka

Chatura Rodrigo¹, Lakmal Abeysekera²

Many developing countries are faced with continual challenges in increasing their agricultural production. Concerns over food security have pushed governments to provide input subsidies. Among many input subsidy schemes implemented, subsidies for fertilizer have undoubtedly been a major agricultural intervention for many developing countries. As in many developing countries, subsidy of fertilizer represents a major agricultural policy in Sri Lanka, with the paddy sector being the chief recipient. There are concerns regarding the effectiveness and sustainability of the subsidy due to farmers' overuse of subsidized fertilizer as well as using it for crops other than paddy. Yet, in terms of establishing food security and reducing unemployment, the government is under constant pressure to continue with the subsidy program. Furthermore, the subsidy has become a politically sensitive issue in Sri Lanka, as paddy farmers comprise the majority voter base, a common experience for governments of most developing countries. However, to evaluate the effectiveness of the subsidy scheme implemented by the government of Sri Lanka, a clear understanding of the factors that determine the demand for fertilizer is necessary.

The empirical form of the fertilizer demand function can be depicted as follows:

$$\ln F = \alpha + \beta D_c + \gamma \ln Y + \sum_{i=1}^3 \delta_i \ln W_i + \sum_{j=1}^4 \vartheta_j \ln Z_j + \epsilon \dots\dots\dots(1)$$

In equation (1) F is the fertilizer usage based on the major paddy-producing area, Y is the paddy output, Z1 is the price of rice fertilizer, Z2 is the price of labor, Z3 is the price of seed paddy, W1 is the cost of machinery, W2 is the cost of materials, W3 is the cost of pesticides, Dc1 is the dummy variable to represent the subsidy years (subsidy dummy) and Dc2 is the dummy variable to represent commercial paddy-producing areas (area dummy). The α , β , γ , δ , and ϑ are estimated parameter coefficients and ϵ is the random error.

A panel-data analysis (1990-2011) reveals that demand for fertilizer is negatively affected by the price of fertilizer and the price of seed paddy and positively by the price of labor. The own price elasticity of fertilizer is relatively inelastic which highlight the fact that there isn't a close substitute for chemical fertilizer. Despite strong demand for fertilizer in commercial paddy production, the impact of the subsidy on demand is low. Results indicate that mechanization will prevent overuse of fertilizer and a seed paddy subsidy will ensure self-sufficiency in rice production. Finally, we recommend that the fertilizer subsidy be removed in the long-term in a gradual manner. However, a short-term reduction (within the next 2-3 years) in the fertilizer subsidy can be implemented for non-commercial paddy-producing areas. Removal of the fertilizer subsidy from the commercial paddy producing areas can threaten the self-sufficiency of paddy production of the country. Therefore the removal of the subsidy from these areas has to be done gradually while introducing organic fertilizer as a substitute. Majority of non-commercial areas are working with traditional paddy varieties and these areas can be exposed to organic fertilizer much more easily and remove the fertilizer subsidy in the short run.

Key Words: Fertilizer demand, Fertilizer prices, Fertilizer subsidy, Paddy production

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Determinants on Creativity towards Organizational Innovations: An Exploration on Literature Review

Neel Wasantha¹, Ravindra Dissanayake²

Creativity and implementation are two identical activities of an innovation process which is determined by different antecedents. Both earlier research and more recent efforts have treated creativity and implementation as indicative of the highlighted concepts. Group characteristics, job requirements, and personnel attributes (Feldman & Lam, 2010) are some important factors in understanding of the contextual and individual factors that shape the innovation in organization. It is said that relationship of creativity and idea implementation, the production of creative ideas is far more prevalent than their conversion into actual innovations (West, 2002). Further, it has revealed that organizational power structures have been affected to the resistance of the creativity (Janssen et al., Kanter, 2004).

A variety of factors have been identified as crucial antecedents to this umbrella concept with climate and culture. Traditional approaches found in literature highlighted the practice of helping people to become more creative in their work environment. But, it ignored the role of the social environment in creativity and innovation. In contemporary approach, it assumes that all humans with general abilities are able to present at least creative work in some domain. Some of the time that social environment can be influenced both level and frequency of creative behavior. This study discusses how organizational and social antecedents could impact on creativity to have proper implementations of decisions and strategy activations as a dynamic organization. A comprehensive literature review has been executed to build an argument on different theories to provide knowledge based discussion and futuristic focus on creativity as a strategic tool to be alert for the modern organizations.

Key Words: Creativity, Innovation, Traditional & Contemporary Approach

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Devaluation of Yuan and its impact on Emerging Economy

Nishi Malhotra¹, Priya Malhotra²

This paper discusses the impact of the recent devaluation of Yuan and its impact on Emerging Markets. One of the most commonly used method to correct balance of payments is devaluation of the currency. In case of China, we have deteriorating exports and adverse balance of payments as one of the reasons for devaluation. Besides, being a protective move, devaluation also casts shadow on varsity of obligations of member nations of International Monetary Fund and does not augur well for International trade. Third issue, is the investor's interest. Investors have taken lot of out of the money positions in the currency markets. They are running the risk of irrational risk maximization by taking reverse positions in US Dollar vis a vis Chinese Yuan. Moreover, they will definitely lose lot of money as premium amount. To add to further apprehension, the model adopted by the Chinese Central Market for the determination of the currency portfolio is primitive mean - covariance model. This model does not provide for the statistical errors of estimation and higher moments in the currency markets. This paper discusses the Value at Risk and Covariance Value at Risk model for designing optimal portfolio strategy for the fund managers. In this paper we have secondary method of data collection. We have taken historical data on currency moments for past 60 days. In this paper we have done a comparative analysis using simple covariance vis a vis Value At Risk and Covariance Value at risk Model. We have used statistical estimated mean and estimated covariance calculated from the sample data for past 60 days, to show the superiority of covariance at risk and Value at Risk Model. Optimal portfolio designing definitely impacts the monetary policies and balance payments of any Central Bank. Value At Risk and Covariance Value at Risk Model is a better technique for maximizing wealth of investors in this volatile environment.

Keywords: Devaluation, Yuan, Emerging Economy

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Ex-Dividend Day Stock Price Behaviour - Evidence from Colombo Stock Exchange

Piyanga Karunaratne, Suren Peter

Efficient market is one in which prices fully reflect available information. Implication of an efficient market is that no excess returns can be made since current prices already reflect all available information. Recent research supports the hypothesis that CSE is not a semi-strong market and as a result there is a possibility for investors to make abnormal gains. The objectives of this paper was to identify ex-dividend price behaviour of stocks at the CSE and to identify suitable trading strategies around ex-dividend day to exploit this anomaly.

A sample of 85 listed companies' with 470 ex-dividend events were selected covering the period January 2003 to December 2012. Relative Liquidity Ratio (RLR) was used to divide the sample into two groups to control for liquidity. Initially the stock price behaviour on ex-dividend day was examined using Raw Price Ratio (RPR), Raw Price Drop Ratio (RPDR) and Market Adjusted Price Drop Ratio (MAPDR). Thereafter, the event study methodology was used to examine the abnormal returns and abnormal volumes on and around ex-dividend day using the market model, mean adjusted returns model and market adjusted returns model.

The findings from RPR, RPDR and MAPDR implied that the stock prices drop by less than dividend on the ex-dividend day. The results from the event study implied significant positive abnormal returns and volumes on and around ex-dividend day. This finding is consistent with the short term trading hypothesis, but could not be explained by the taxation hypothesis. Further, the results indicated that for the liquid stocks there are significant negative abnormal returns on cum-dividend day followed by significant positive abnormal returns on ex-dividend day. For the least liquid stocks there are significant positive abnormal returns on ex-dividend day followed by significant negative abnormal returns on the following day. These results also confirm that the CSE is not information efficient and investors have the opportunity to make unusual gains by trading around ex-dividend day.

Key words: Ex-dividend, price behavior, Sri Lanka

Factors Effect on Employee Turnover Intention: Evidence from Leasing Industry in Sri Lanka

A.I.N.K.Wickramasinghe, D.K.Y.Abeywardhana

This study investigates the turnover of young and fresh employees in the leasing industry in Sri Lanka. Employee turnover has become a common phenomenon and it results in career changes and job mobility. Nevertheless, every single organization will have to deal with the turnover of employees.

However, the turnover of desirable employees may have a significant impact on the organization, rather than the less productive ones. This research is based on the major factors that influence job satisfaction and in turn will reflect on an employee's intention to quit or not. Annual reports in the leasing industry show that the turnover ratio fluctuates from 8% to 25%.

The key factors to be considered are, work-family life balance, career development opportunities, compensation and benefits, perceived supervisory support, employee performance management and job security. Previous researchers have focused on western countries aiming at all levels of employees.

This study conducted is based on 14 leasing companies with a sample of 116 young employees. The qualitative research method was used where a questionnaire survey forms were handed over to the participant's age between 22 and 32 to fill, using simple random and snowball sampling technique. Correlations and regression tests were performed. The results indicate that the turnover intentions on particular variables were more complex than previously assumed. Main reasons for turnover intentions were the work-family life balance, career development opportunities and perceived supervisory support.

Piecemeal investigations of this sector provide inadequate information; hence dearth of information on the finance sector in Sri Lanka is a major weakness.

Key words: Young employee turnover intention, work-family life balance, career development opportunities, perceived supervisory support

Factors of Job Satisfaction of Ayurvedic Doctors

Lankeshwara Piumi¹

At present the Ayurvedic Medicine has become a globally reputed medical method and thus the teachings on Ayurvedic medicine, their utilization and market for Ayurvedic medicine became more popular around the world. In this context the role of the ayurvedic doctors and by that the efficiency is of higher importance since their performance directly impacts on the effectiveness of ayurvedic medicine. So increasing the doctors job satisfaction would lead to improve the effectiveness of service and contribute to enhance the effectiveness of entire ayurvedic system of medicine. The objective of this study was to identify the influential factors for the job satisfaction of the ayurvedic doctors. The study has utilized primary data and a sample of 138 ayurvedic doctors has chosen in accordance the Morgan approach of sample selection from Uwa and Southern provinces through the purposive sampling technique, using already developed self-administered questionnaire. Multiple Regression Model has been utilized as the main data analyzing technique. The survey results revealed that the independence in work, relationship with the coworkers, job role and the social recognition as factors for the job satisfaction. All of the above factors are positively influential and the social recognition has identified as the most critical predictor. Implications of the findings and recommendations are offered.

Key words: Ayurvedic Doctors, Job Satisfaction, Job Role

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Impact of Customer Orientation Practices in Supply Chain, on Supply Chain Performance

Suren Peter, Malindi Heiyantuduwa

The study presents a conceptual model that links customer orientation practices and supply chain performance.

Rising competitiveness has motivated businesses to seek innovative and effective methods to build competitiveness across all value enhancing activities of its operations. Recent research have highlighted that “Companies do not compete; supply chains do”, leading the companies to seek means of achieving sustainable business success through collaborative supply chains. Further, identifying and satisfying, or rather going beyond satisfying customers’ expectations is essential for sustaining business performance.

Linking these two important notions; supply chain focus and customer orientation, this study presents a model that enables assessing how the use of customer orientation practices, affects supply chain performance. Several models on customer orientation and on supply chain performance measurement were analyzed and subsequently combined and adjusted to suit the specific requirement. Expert opinion was used in the process of refining the proposed model.

The presented model categorizes customer orientation practices in supply chain in to three main categories as information sharing practices, operational practices and customer service practices. Under each of these there are several sub categories of practices defined. This multi-tier categorization allows specifically identifying which type of practices impacts the most or least on supply chain performance in the context of a particular supply chain, or a particular industry. Hence the use of the model is twofold, as it enables ascertaining if there is a significant impact of using customer orientation practices, on supply chain performance in a certain firm or industry, as well as identifying best practices of customer orientation in that context. Therefore it is capable of providing guidance in implementing customer orientation practices in supply chains, and thus effectively enhancing supply chain performance.

Key words: Supply Chain, Customer Orientation, Supply Chain Performance

Impact of Job Perception on Career Satisfaction of Employees

S.M.S.P.Kumar¹ and L.N.A.C. Jayawardena

Employee job perception has an impact on their career development. It influences the retention, development and career satisfaction of employees. Agro-based organizations play a major role in Sri Lankan economy. They are involved in a diverse sector. This study has mainly focused on the impact of job perception on career satisfaction of professionals in the agro-chemical industry. A descriptive research design along with cross sectional sampling survey was carried out to study the selected variables of professionals in agro-based organizations in Sri Lanka. A self-developed theoretical framework and research tools were employed to guide and quantify different concepts of the research. A sample of 81 employees was selected from five main agro-based organizations. Employees belonged to all three management levels, viz; senior, middle, and junior. Multistage stratified random sampling technique was employed to draw sampling units. Research findings indicated that career satisfaction is not correlated with age. However, career satisfaction of managers differed with gender. Marital status and education level of managers did not associate with their career satisfaction. Career satisfaction of employees differed significantly with their seniority in the management hierarchy. Research findings reveal that nature of the job and career experience have a positive impact on career satisfaction of employees.

Key words: nature of the job, career satisfaction, career experience

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Impact of Total Quality Management on Organizational Performance: with reference to Apparel Industry, Sri Lanka

T.S. Kolonne¹, R.M.C.L.K. Rathnayka², Y.K. Weerakon Banda³

Total Quality Management (TQM) is an art of managing the whole to achieve excellence. TQM is defined as both a philosophy and a set of guiding principles that represent the foundation of a continuously improving organization. TQM integrates fundamental management techniques, existing improvement efforts, and technical tools under a disciplined approach. The aim of this research paper is to analyse the impact of Total Quality Management applications on performance of the Apparel industry in Sri Lanka. For the study there are eight coherent concepts of TQM were identified amongst the literature. Those are Customer focus and Communication, Training & Education, Work environment and Culture, Continuous improvement, Leadership, Supplier Quality management, Resource management and Process and system improvement. These variables selected to determine organizational performances after application of TQM practices. The awareness of each one of these items was investigated among 120 respondents which include operational/ Middle and Top level management in Apparel industry. The hypothesis testing was carried using the results of Person's Product Movement correlation analysis and the results of regression analysis through SPSS. On the basis research results and analysis, Customer focus and Communication, Training & Education, Work environment and Culture, Continuous improvement, Leadership, Supplier Quality management, Resource management & Process and system improvement have a significant relationship with performance of the organizations. That prove the application of TQM has positive relationship with the Performance of the apparel industry. According to the results of Pearson's Product Movement correlation analysis between Person Correlation between total average of variables and total average of Determination of the performance is 0.901. It shows that there is a strong positive relationship between Correlation

between total average of variables and total average of Determination of the performance. Then, it was found relationship is statistically significant as correlation is significant at 0.000 level (2-tailed) whereas, Correlation is significant $p < 0.05$ level. Furthermore as per the regression analysis 'R' is 0.901 and 'R²' is 0.812 which is expected range. So it is further proven that 90.10% of the variance performance is the selected independent variable. That proves the application of TQM has positive relationship with the Performance of the apparel industry. Other external factors that would be influence the organizational performance other than the TQM. Study used artificial names for companies such as ABC, LMN, PQR and XYZ for identification as an ethical consideration. The findings and outcome of this research demonstrated the benefits that accrue from the implementation of TQM which adequately deployed, the principle brings about added value to an organization in terms of efficiency in operation, employee satisfaction, customer satisfaction and ultimately to financial benefits to the companies. On the basis research results and analysis that is proven that applications of TQM has positive relationship with the Performance of the apparel industry.

Key Words: - Total Quality Management, Organizational Performance, Apparel industry.

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Impact of Working Capital Investment Policy on Firm Value in Sri Lankan Manufacturing Companies

R.M.S. Bandara¹

Corporate financial officers identify the Working Capital Management (WCM) as being important determinant to their firms' value. WCM is defined as the ability of the organization to fund the short term assets and short term liabilities. In practice, WCM has become one of the most important issues in the organizations. The issue is vital in the manufacturing sector organizations due to employment of high amount of short term assets in day to day operations.

The study investigates the impact of firms' WCM Investment Policy (IP) on firm value in Sri Lankan companies. The sample of the study was 36 manufacturing companies listed in the Colombo Stock Exchange for the period of 2008/09 to 2012/13 which comprises 180 firm year observations.

Correlation and panel regression analysis were employed as measures of analysis. Firms' IP was used as an independent variable. Firm value was measured in terms of Economic Value Addition (EVA) as dependent variable of the study.

IP explains the way in which a firm invests their funds in short term or long term assets. Where a minimal level of investment is in current assets in comparison with fixed assets, it closes to the more aggressive IP and percentage of current assets on total asset was used as a measurement of IP. EVA indicates economic profitability and it assesses the managerial effectiveness in a given year by measuring profits, after subtracting the expected return to shareholders. Creating sustainable improvements in EVA is synonymous with increasing shareholder wealth (Stewart, 1991).

Both correlation and regression analysis results proved that there is a statistically insignificant but negative relationship between IP and EVA providing evidence that manufacturing companies having more current assets as a percentage of total assets will decrease its EVA of manufacturing sector companies in Sri Lanka.

Key words: Working Capital Management, Firm Value, Economic Value Addition, Investment Policy

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Impulse Buying Behavior: Conceptual Evolution

Joshy John¹, Siby Zacharias²

Researchers and strategic managers across the world have done a great job with respect to advent of Impulse Buying as a significant concept worth analyzing. Past six decades have seen the transformation of the concept from a thin idea to heavy theoretical structure. ('DuPont' studies 1950; 'Nesbitt' (1959); 'Stern' (1962); 'Bellenger et.al' (1978); 'Engel & Blackwell' (1982); 'Abratt&Goodey' (1990); 'Evenden' (1999); 'Verplanken*et.al*' (2001); 'Herabadi et.al' (2009); 'Sharma *et.al*' (2010); 'Piyush Sharma *et.al*' (2014). This paper is built on review made upon literature published over the past six decades. This review has been taken up with a precise emphasis on understanding the concept of impulse buying. An analysis of historical perspective of the concept and contemporary definitions are done here. It comprises of the vibrant contributions from different, yet relevant field of knowledge, for the purpose of presenting a holistic perspective regarding the phenomenon 'impulse buying'.

Electronic database, Journals, Academic papers were referred for this purpose and is presented here. Literature found is appraised and systematically arranged according to every ten year period. It reveals the internal construct of Impulse Buying and various Behavioral, Internal, Situational, Demographic factors which influence the practice. The vivid facets of the concept are offered to researchers and practitioners who are interested to take research to the next level. This paper could serve as the foundation stone for a future research that undertake knowledge gaps in this arena. Different elements could be focused for future research. These efforts could help understand the concept in detail. From a practitioner's viewpoint, the article is of great help to understand the major factors which influence 'impulse buying' to propose fitting selling strategies. In the ever changing retail scenario of emerging economies across the world, such differentiated efforts are required for sustained growth of the business.

Key words: Impulse buying, Impulsive nature, Kinetic elements, Retailing, Organized Retailing.

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Investigating the Relationship between Customer Retention and Business Performance in XYZ Airlines

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Today, in the competitive market, the customer retention has become a challenge for every organization. Therefore, the organizations need to build the strategies in order to achieve their organizational goals and to attain the desired profitable outcome. Due to the significance of the customer retention practice and the role of xyz airlines towards the nation's economy, this study intends to explore possible factors that influence service-oriented xyz airlines' customer retention practices and their subsequent impact on the performance of the business.

A quantitative method and a survey questionnaire were used to investigate the problem. Hundred respondents were sampled by using a random sampling technique. Exploratory data analysis and correlation analysis were used. The analysis of the study clearly exposed that all the six constructs used in the study namely; customer satisfaction, switching cost, price perception, customer loyalty, perceived service quality and customer service are significantly and positively associated with business performance. Despite limitations like generalizability, the findings of this study provide evidence that the management of XYZ airline are required to work closely with these strategies, especially Airline Service Quality and Airline Switching Barriers. Also, it is essential to fine-tune them to reflect the exigencies of the time.

The customer centered companies should always be familiar with the needs and demands of their customers. The companies should always evaluate their performance and understand where they actually stand according to the customer's demands and perceptions. Now, the Airline Industry enthusiastically focuses on marketing strategies in order to increase the level of customer retention, hence the profit level of the company will increase. Therefore, as a strategy, XYZ airlines can offer different discount packages and promotions by making agreements with selected business firms, so as to retain the customers.

Key words: Retention, Airline, Business Performance

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Male And Female Consumers Buying Decision Differences Towards Fashionable Garments; A Special Reference Of Southern Province Sri Lanka.

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This paper focuses on observing the differences of decision making patterns of male and female consumers toward the fashionable garments. Consumer decision making process comprises mainly two steps as pre-decision stage and post-decision stage. Consumers may sometimes typically rely on simple strategies, rather than going through a series of steps or processes rationally when they made purchase decisions. Consumer Style Inventory (CSI) is specially developed for exploring the customer different decision making style was adapted for this study. This study attempted to identify the buying behavior patterns of Sri Lankan consumers and as well as explore the differences of buying patterns of male and female consumers. According to the consumer style inventory (CSI) model, there are seven decision styles of consumers. Throughout this study researcher hope to investigate how the decision making patterns can be different between male and female consumers in Sri Lanka. The study is tapping the responses of 200 respondents from different gender groups in Sri Lanka. The sample was selected conveniently and occupied by undergraduates at the University of Ruhuna. The survey was employed as the tool to collect primary data and used self-administered questionnaire which was built up focusing Consumer Style Inventory (CSI). The variables of the study were perfectionism or high-quality consciousness, brand consciousness, novelty-fashion consciousness, recreational, hedonistic shopping consciousness, price and “value for money” shopping consciousness, impulsiveness, confusion over choice of brands, stores and consumer information, and habitual, brand loyal orientation towards consumption. Descriptive frequencies indicated that, the majority of the respondents in the sample is representing ‘perfectionism or high-quality consciousness’ buying pattern. The results of the t-test state that, though the female consumers illustrate high mean values, respects to all the buying patterns than the male consumers. Accordingly, only the ‘brand consciousness’ buying pattern indicates the significant difference between male and female consumers related to the selected sample. Further, future application of the findings and managerial implications are discussed.

Key Words: Consumer buying decisions, Consumer Style Inventory (CSI), Apparels, Young generation.

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Microfinance and poverty alleviation: Case of the Northern Province in Sri Lanka

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The paper evaluates the impact of microfinance on poverty alleviation in the Northern Province of Sri Lanka. After being the central area of conflict over the last three decades, the cessation of hostilities has provided the residents of the province the opportunity to rebuild their lives and recommence their economic livelihood. Since many residents have limited access to funds, the microfinance product has become a key component in the revival of the economy in the region. Data was collected and analyzed in 2013, through a structured questionnaire, from all five districts in the Northern Province where microfinance is offered by banks and a large number of private financial institutions all competing to offer the product as the returns and risk on the product are deemed very attractive. The conceptual model associates beneficiaries' income and living standards with the key dimensions of the microfinance product which include interest cost, credit availability and the credit appraisal process. An econometric methodology using the ANOVA model was used to assess the data. The results of empirical analysis indicate a positive relationship between microfinance and poverty alleviation in the period under study. Awareness levels of the population on the micro finance product were extremely high. However, a lack of an integrated credit appraisal system and competition among vendors to attract customers has provided an enabling environment for possible misuse of the product. Access to low cost funding and high interest rates has made the product very attractive even for the more established financial institutions, though the objective of using the product to alleviate poverty has got blurred. The results are similar to what was found in Bangladesh, where it was found that microfinance not only contributes to alleviating poverty, but also contributes to overall human development in the country. However, the results are contrary to what was observed in Indonesia, where it was found that the impact of micro finance on various household outcomes is generally insignificant.

Key words: Microfinance, poverty alleviation, Sri Lanka

Model to assess factors influencing performance of customer orientated supply chains: The manufacturing firms' perspective

Suren Peter, R.H. Thilakarathna ²

The dynamic external macro environmental changes that are happening have a major impact on businesses around the world. Businesses which were cocooned and protected from outside forces due to protectionist policies were accustomed to dealing with and managing competition at the industry level and firm level. However, opening up of markets to worldwide competition has made even these internal rivalries more intense. It's a well-known fact that today it's not just a competition at firm level, but it has expanded to a level where it has become a competition between supply chains.

In this sort of a context being customer oriented and embedding customer values in the supply chain environment becomes highly important to make the supply chain more appealing to customers amidst these varying conditions which they do not control. The relationship between customer oriented practices and supply chain performance is an intriguing relationship which is now becoming a focus of research.

This paper outlines a framework that could be used to identify the impact of factors influencing the relationship between customer orientated supply chains and supply chain performance. Past literature on this relationship was analyzed and several existing models by various authors were identified. These models were later used as the basis and other factors influencing this relationship which were studied separately, were collated into the base model to make the model comprehensive. These included organizational learning, supply chain practices, interactive infrastructure, innovation in supply chains, and supply chain capabilities. Expert opinion was used in the process of refining the proposed model. The framework conceptualized through the study could be used to assess supply chain performance and key variables impacting on the relationship between customer orientated supply chains and supply chain performance.

Key words: Customer oriented supply chain practices, Supply chain performance, Influencing factors, Mediators and moderators

Moderating And Mediating Contexts In Celebrity Endorsement On Brand Attitude: A Literature Review For Future Research Studies

Ravindra Dissanayake¹, Neel Wasantha²

Celebrity endorsements have been found in practice and studied in theories as a wider perspective. Celebrities provide endorsement as expert opinions, being a spokesperson for a product, or just being associated with a product (McCracken 1989; Seno and Lukas 2007). As per the published literature, it is about 25% of all television and print advertisements in the United States have featured celebrities (Erdogan, Baker & Tagg, 2001; Shimp, 2008), and endorsement contracts are estimated to be 10% to 25% of total advertising expenditures (Ding et al., 2010). Futher, Li (2011) said nearly \$10 billion more to promote celebrity endorsements due to powerful effect it occupied on products being endorsed. But, it was said (Racula, 2012, Abdussalam, 2014) that celebrity's image does not guarantee success and it deals with advertising risks. The latest source argued that it is as an expensive source of communication and may generate conflicting messages when he or she endorses various brands. Karasiewicz & Martyna (2014). However, Till and Busler (1998, 2000) have examined attractiveness versus expertise as a match-up factor in celebrity endorsement, and found a general attractiveness effect on brand attitude and purchase intention. Further, Hung, Kineta (2014), justified links between entertainment motives and experiences influence endorsed brand attitude. Accordingly, it has a clear argument on the effectiveness of celebrity endorsement towards brand performance, particularly brand attitude and purchasing intention. Par with the said, via the reviewed literature sources, this study discusses how the relationships or impacts between celebrity endorsement and brand attitudes of the products endorsed could be mediated or moderated. Paper suggests how the future studies to be carried out with the gravity of newness contributing for the new knowledge and practice.

Key Words: Celebrity Endorsement, Brand Attitude, Advertising, Mediation, Moderation

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Research Paper On ‘Impact Of Organizational Factors Affect On Retention Of Indirect Cadre Employees In Apparel Industry’

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This research involved predominantly quantitative method supported by qualitative components in retention of indirect cadre employees in apparel industry.

Researcher gathered data from a questionnaire and having interviews with some of the employees who have already left their organizations and with some of the heads of departments. The questionnaire basically measures qualitative factors affect on retention of employees. Dignity of factors is measured by ‘Likert scale’ method. It is a self-administered questionnaire on a basis of similar type of questionnaire used to get information about ‘factors affect on employee retention in the Commercial Banking sector of Sri Lanka, by Edirisinghe U.R (2008) and Minnesota Job Satisfaction questionnaire.

Sample was selected, as per purposive sampling method considering the behaviour pattern of labour turnover rate, where factories experience highest labour turnover included in the sample. But in order to identify good practices to retain employees in the organization, garment factories which maintain favourable labour turnover rates also included in the sample.

Rest of the category are belonging to indirect cadre apart from machine operators and helpers comprise of people from various departments like HR, Finance, IT, Merchandising, Production, Industrial engineering, Washing, Packing etc. And also positions like executive, senior executive, assistant manager, manager and head of the division/ divisional manager in their respective departments served as unit of data collection on retention and good organizational practices on retention of indirect cadre employees.

Quantitative method of research used to collect data. Total of 250 questionnaires used to collect data from 5 selected factories located in Free Export processing Zone, Katunayake. More over data was triangulated having interviews with Assistant managers, Managers and with 3 employees who have already left the organization.

Initially total of 50 Questionnaires were emailed to selected 5 factories for people who have access to internet in the office and basically for managerial level employees. But the response rate was low. Considerable number of responses received after sending the first reminder. Another set of 200 hard copies of questionnaires were distributed among non-managerial workers, but those who are belonging to indirect cadre across all five organizations proportionately. Because there are workers who do not frequently use internet. Response rate was quite good among this category of employees. At the initial stage stratified sampling method used to identify number of questionnaires to be distributed to each factory and then random sampling method was used.

175 questionnaires used to analyse data from total of 194 questionnaires received from respondents.

Primary data collected for the purpose of this research study and Secondary data collected for other purposes of analysis.

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Strategic Management and Sri Lankan Women Entrepreneurs

Thesara Jayawardane¹

The focus of this paper is to view and examine the various strategic management styles used by Sri Lankan women entrepreneurs. The paper further explores women entrepreneurs in Sri Lanka to understand the impact created upon them on empowering women. Are there different management styles used by the women entrepreneurs of Sri Lanka? Have the women entrepreneurs made an impact on the development of Sri Lanka? What is the importance of women entrepreneurship on empowering females in Sri Lanka? These were the questions that this paper attempts to answer. In many parts of Sri Lanka women play a crucially important role in social and economic production. However, the constraints of poverty, combined with poor infrastructure and minimal resources, limit entrepreneurial possibilities. Nonetheless, Sri Lankan women entrepreneurs use enterprise to try to improve their lives. There is a thought that significant differences exist in the general entrepreneurial behaviour and performance between men and women, as well as between women from the same region and from other localities. This paper is aimed at increasing understanding on whether these differences are brought about by the cultural and social attributes, rather than physical and psychological differences. In summary the outcomes of this paper identify the intrinsic motivator for women entrepreneurs is to provide for their family, to give their children a better life than what they experienced, and to escape the entrapments of poverty. Stereotyping and discrimination combined with lack of capital and access to micro-credit were seen as the major inhibitors to business success of the women entrepreneurs.

Therefore the paper has not only identified the unique management styles used by the women entrepreneurs of Sri Lanka but has found the various ways the women are empowered through the women entrepreneurship and how it affects the development of Sri Lanka.

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The challenges of Last mile delivery in Indian Ecommerce Scenario

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In Business to Consumer (B2C) e-commerce, Last Mile Delivery is the final leg of the supply chain, ie , the last leg of the product's trip before it arrives on the customers doorstep. And it is generally the most expensive, least efficient and most problematic part of the overall delivery process. The Indian E-commerce Industry is growing in great momentum. Compared to just in 8 million in 2012, in 2014, about 35 million people are buying products online. This number is expected to grow almost three times to 100 million in the next two years. The industry has seen many-fold growth over the years, but the logistics and delivery segment that caters to e-retailing have not seen much growth during the period. The success of ecommerce business largely depends upon an efficient last mile delivery. But the e-commerce logistics in India suffers with several bottlenecks .Currently, the logistics and delivery companies service less than a third of India's postcodes. In India as fast growth in e-commerce is mainly triggered from smaller cities and towns, a robust delivery network to reach the remotest town is need of the hour. The study aims to identify the importance of last Mile delivery, the present situation of Last Mile Delivery in India, the future prospects and a comparison of last mile delivery in India with other developed markets .The study also tries to identify the changing role of Indian Postal System in E-commerce last mile delivery in India. The study is based on the analysis of the secondary data only published in Newspapers, Periodicals, Journals and various websites. In future, e-commerce companies that can deliver the goods and services at a reasonable cost will have the edge. The ability to fulfil and deliver orders on time could determine an e-tailer's success. Many Indian Companies are adopting a range of new technologies that may help them overcome the last mile challenges.

Keywords: Indian e-commerce, Last mile delivery, Logistics

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The Practice of Accounting Services Outsourcing and Firm performance in Nigerian Small and Medium Enterprises (SME's)

Danjuma Mohammed¹

This study analyses the reasons Small and medium sized enterprises (SME's) engages in outsourcing accounting services and the sequel of outsourcing on performance in terms of Transaction Cost Economics (TCE) Theory in the context of SME's in Nigeria. The use of questionnaires to collect data was employed. Three hundred and sixty (360) questionnaires was administered to the sampled SMEs and two hundred and fifty seven was duly completed and returned. Simple linear regression analysis was run to determine key factors affecting accounting services outsourcing in Nigerian SME's. The study reveals that the predictor variable outsourcing has a significant impact on firm performance (Coefficient=0.7859, $p<0.001$) and Asset Specificity Trust in Accountant and Behavioral Uncertainty is significantly related to SMEs performance (Coefficient= 0.6725, 0.8534 and 0.7537 respectively). The study recommends that SME owners/managers through their Decision Making Units (DMU) to engage in accounting services outsourcing since it has positive effect on firm performance and this will allow them to concentrate on their core competencies.

Keywords: Outsourcing, Accounting, SMEs, Performance

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The Working Capital Management Practices of Small and Medium Enterprises (SMEs) in Sri Lanka

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Small and Medium Enterprises (SMEs) play an important role in any economy as they are capable of generating employments, promoting the growth of Gross Domestic Product (GDP), embarking innovations and stimulating all other economic activities. This sector is said to be the backbone of all developed and developing nations. Therefore the development of SME sector is paramount important for any country irrespective of their level of development.

The purpose of the study is to explore the Working Capital Management (WCM) practices adopted by Sri Lankan Small and Medium Enterprises (SMEs) and to study the usage of such practices in prevailing information systems and financial reporting practices.

The sample of the study is 60 SMEs which are operating their businesses in the manufacturing sector and limited to the western province in Sri Lanka. The study focused on the main working capital components such as cash, trade receivable and inventory management of SMEs. A questionnaire was used to explore the adoption of cash, receivable and inventory management practices of SMEs. Descriptive statistics were used to analyze the data in order to examine the said purpose of the study.

The findings revealed that recording of cash, inventory and accounts receivable practices of SMEs were not conducted in a formal manner and used to continue WCM practices in an ad-hoc basis. Findings of receivable management practices identified that selling products on credit basis is a common trend in Sri Lankan SMEs and the length of accounts receivable and the credit term policy depends on the owner's prior experience and perception on customers. Findings on inventory management practices and level of cash in hand demonstrated that owner/manager's experience found to be more important in determining the inventory levels, the amount of cash in hand and preparation of inventory and cash budgets. The above findings are consistent with the empirical results of the literature.

Accordingly the ad-hoc working capital management practices of SMEs' leads to the excessive level of working capital resulting low level of profitability or low level of working capital exposing problems that disturb day to day operations of SMEs. In overall study validated that the adoption of working capital management practices among Sri Lankan SMEs is low as a result of lack of knowledge and the negative perception of cost benefit analysis on implementing a good WCM practices. Thus it is important to provide platform for training SME owners on how to adopt and implement WCM practices to ensure long term survival of SMEs in Sri Lanka.

Key words: Small and Medium Enterprises, Working Capital Management – Receivable, Inventory and Cash management practices, Sri Lanka

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Usage of Colors in Advertising Industry in Sri Lanka

R.N.D Thilakarathne

The objective of this study is to identify the Usage of colors in Advertising Industry in Sri Lanka to understand the role of non verbal communication related to colors for effective branding, advertising, packaging and other creative material use to marketing and sales.

In order to achieve the objective, secondary data were collected and analyzed from the TV commercial (25) advertisements (100) and for the objective, interviews and discussions were conducted with 20 marketers and customers.

Result for the first objective shows that Color does visual excitement in mind which cause to change the attitudes and develop the brand and advertising awareness easily according to social psychology and intra personal communication. The hue can motivate the customers but it differs to culture to culture. Especially brand color is forced to use same color when advertising a brand. The usage of color depends on target group of brand also. Blue, red, orange and yellow are the most used color in Sri Lanka when branding and advertising. The study shows variety of dark colors has used branding and advertising targeting Tamil population.

An understanding of cultural colors and symbolism is essential to anyone doing branding and advertising. These associations with color have been a part of many societies for centuries and you must be aware of both the positive and the negative implications of using particular colors when marketing. The study has found that has used cultural colors effectively six out of ten on Branding and advertising. Others haven't identified the importance of using cultural colors for their business.

In today's agile world effective communication become very difficult task and concept of communication getting changing every day. There are key types of communication as non-verbal and verbal communication In human communication. Due to the invent of the mobile communication and the globalization, the non verbal communication such as color communication is becoming very effective and there for in marketing, advertising and branding color communication is becoming more prominent and most effective way of communication. From the perspectives of using colors in adverting should be brand promoting with perfect idea of a brand in addition to sense of target group customers and competitors. This will help them to achieve brand positioning with beliefs and values.

Faculty of Humanities

A comparative analysis of Juastin Pieris Deraniyagala and the French Cubist and Fauvist Paintings

S.T. Hiruni Pabasara Samarasinghe¹

Painting is a mode of creative expression which grants the painter to visualize his unexposed feelings on a free surface using his own characteristics. These techniques differ from one painter to the other. Nevertheless, a controversial point has been raised about Justin Pieris Deraniyagala's paintings. Whereas Neville Weerathna in his *The 43 group: Chronic of 50 years of Sri Lanka* highlights the reappearance of fauvist techniques in Deraniyagala's paintings, A. Deraniyagala in *Justin Deraniyagala Oil Paintings* comments about the cubist mask effects of the same author. This presence of cubist and fauvist features in the artistic language of Deraniyagala leads the critiques wonder whether he has traced fauvist and cubist features in his work or it was his authentic style which resembles particular elements in his work. It indeed is a dilemma to an exterior viewer. Thus, this work focuses on identifying whether the author has been subjected to such influence. The data was collected by conducting interviews with scholars of the field and examining selected paintings of the author. This particular analysis is effective in the field of art to identify the influence of French trends on the Sri Lankan canvas paintings. The findings highlight the fact that though being influenced by the said French movements, Deraniyagala has added his own personal touch to the Sri Lankan paintings by adding oriental characteristics that are nothing but our own.

Key words – cubist, Deraniyagala, fauvist, influence, paintings

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A Comparative Study on *The Waiting Earth* (Punyakante Wijenaikē) and *The Good Earth* (Pearl S. Buck)

L. Bandaranayaka¹

In a press interview, regarding the longest novel by Punyakante Wijenaikē, *The Waiting Earth*, she has mentioned that she was influenced by *The Good Earth* by Pearl S. Buck for crafting this novel. The novel *Good Earth* is a portrayal of Chinese rural life. In both novels, land plays a major role. In the *Waiting Earth*, Podi Singho, tries his best to own a land of his own while in the *Good Earth*, Wang Lung too takes an effort to own a land of his own. *The Good Earth* portrays cultural beliefs in the Chinese rural society, especially the myths that are prevalent in Asian societies: even the sounds of some animals are considered as good and bad omens. In the *Waiting Earth* too, there are some similar aspects. Besides the cultural beliefs of Sri Lankan rural life and their food habits, Punyakante Wijenaikē tries to bring out the corrupt aspects rooted in the Sri Lankan rural society. Similarly, she brings out issues like the misuse of the concept of free education. On the other hand, she paints a typical image of how tyrannical figures in rural villages misuse the innocence of their fellow villagers. Mainly, Wijenaikē portrays how the woman bears everything similar to the *Mother Earth*. However, in both the novels, the readers are made aware about the cultural rituals, food habits, mythical beliefs, cultural beliefs, social issues and innocent desires of villagers in rural Chinese and Sri Lankan societies. There are more similarities in these two novels. That may be due to the settings of both the novels in the Asian society. Therefore, this study compares and contrasts certain aspects of these two novels.

Keywords: Cultural beliefs, Cultural rituals, Mythical beliefs, Food habits, Social issues

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A discussion on the Irony Concept of Literature

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Irony is a poetic device which occurs on the basis of a contradictory nature of a poetic experience. A comprehensive exposition of the concept 'Irony' is found in the Western tradition of literary criticism. According to Oxford English Dictionary irony is a figure of speech in which the intended meaning is the opposite of that expressed by the words used: usually taking the form of sarcasm or ridicule in which laudatory expressions are used to imply condemnation or contempt and a condition of affairs of events of a character opposite to what was, or might naturally be, expected: a contradictory outcome of events as if in mockery of the promise and fitness of things. There are many kinds and usages of irony, Verbal irony, Structural irony, Stable irony, Unstable irony, Socratic irony, Dramatic irony, Tragic irony, Cosmic irony, Romantic irony, Classical irony, Situational irony etc. Even though the Sanskrit equivalent *utpra:sə* is found in Oriental literature, no attempt has been made by Sanskrit critiques to recognise it as a poetic device. Still, among the theories of Sanskrit Rhetoric and Dhvani, features of irony could be seen. Ironical expressions, dating back to the early ages of Sigiri Graffiti, are found in Sinhalese literature as well. The objective of this research is discussed about the irony concept of Literature in a broader context. This research is based on primary and secondary sources. English, Sanskrit and Sinhala classical discursive books study the primary sources and modern discursive books study the secondary sources. Accordingly, this research paper intends to present a critical study of the concept 'Irony', discussing its role as a poetic device in Literature.

Key words - Irony, Western, Sanskrit, Rhetoric, Dhvani

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Study on the Sinhalese Verb System in Middle Sinhalese Era (8c. AD -13c. AD) with Reference to Classical Sinhala Literary Text "Buthsarana"

Vindhya Weerawardhana¹

This paper focuses on a linguistic study on the Sinhalese verb system in middle Sinhalese era with reference to the classical literary text "Buthsarana". Ancient written records are the main sources in a historical linguistic study. There are two fold varieties of written records regarding ancient Sinhalese language, namely inscriptions and literary texts. In historical linguistics, Sinhalese language is classified into four periods due to structural variations, namely Sinhalese Prakrit era, Old Sinhalese era, Middle Sinhalese era and Modern Sinhalese era. Buthsarana written by Vidya Chakravarthi is one of the significant literary texts belonging to middle Sinhalese era. No previous study has been done regarding this particular area. However, A study on "The Verb in Early Sinhalese from the 3rd c. BC-the 10th c.AD" have been conducted by Premarathna A C, professor in linguistics as the PhD thesis (unpublished) in 1986, University of London. Diachronically an investigation on Sinhalese verb will help to identify the gradual development of the Sinhalese verb system as well synchronically; special characteristics of the verb in middle Sinhalese era can also be found out. Therefore this study has both historical linguistics and structural linguistics value. Finite verbs and nonfinite verbs, tenses, optative mood, causal verb, imperative mood, conditional mood, past participle, progressive form, verbal nouns, inflectional and derivational suffixes are among the special features that are discussed here. Linguists and those who are interested in languages will be benefitted by the findings of the research.

Key words: Middle Sinhala Era, Buthsarana, linguistics, verb system, structure

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'Gangnam Style', the main text for this reading, is a song and music video by Korean musician Psy(싸이). The video was first released in July 2012, and in December 2012, it became the first YouTube video to hit one billion views. Now it is still the most viewed video, over 22 billion, in YouTube history. This song and video raised a district name in Seoul as a worldwide cultural significant. The phrase of Gangnam Style has become a metaphor for having a unique style. All of the parody videos showed their own style what the participants believe it is Gangnam Style. There may be many factors in different context to the popularity of Gangnam Style. Fun, catchy, upbeat, uninhibited, over the top, and even campy are usually qualifying Gangnam Style. Social channels, participation, parody, and sharing are another words group leading it to the viral success. However, at this place we may ask a question. Is Gangnam Style just a funny text? Or is it enough to list those words to appreciate the text? I believe there are still some aspects to explore in this text. Here I'd like to argue another way to read it. That is a reading with historical context. To demonstrate the textual feature of 'Gangnam Style,' I analyze two different cultural texts related in the key word 'gangnam.' Gangnammong(강남몽) written by Hwang Sok-Yong(황석영) 2010 is a typical realistic novel based on facts. As we can suppose with this author's background, the work keeps in a critical perspective on the development process took place in Gangnam(강남). In the fiction, Gangnam is an actual place with lots of historic background. In 1960s, on the opposite side of the river Hangang, the area which had been just paddy fields or dried fields for long time was suddenly faced with huge and intentional changes led by government. Construction of new roads, tall business buildings, apartments(new trend of residence), and luxurious department stores raised the land value. Speculators crowded in and they were chained with government officers and construction companies in corruption. Passing through the prosperous 1980s, the district Gangnam became a symbol of wealth and success dreamed by contemporary Korean people. It was also the symbol of the industrialization of Korea, that is named the compressed growth accomplished in a short period. Another analyzed text is "Gangnam 1970(강남 1970)" a Korean movie filmed in 2015 by director Yuha(유하). The narrative of this film is also based on 'gangnam' not only in the meaning of a spatial setting but the plot and theme. This text represent the real place in a trite gangster story. However it also a scrap of the place imagined by contemporary Korean people, and it is useful to understand the paradoxical expressions in 'Gangnam Style.' In conclusion, the study proposes a critical method for reading a popular cultural text relocating it in a historical context.

Keywords: Gangnam, Korean music

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A study of Pārājikās from the perspective of human rights

R.M. Jeewanthi Kumari Rajapaksha¹ , H.M.I.Prasanthi²

Indeed, Buddhism involves very much to establish and protect the human rights in various ways along with different group of the people in the society such as lay people, Buddhist clergy, ascetics and celibacies by promoting the discipline, friendliness and ethics among people. Human rights assure of the security of the society and guaranty the privileges of human beings by providing legal protection. If individual can maintain good action, the society will naturally be protected by itself. Sometimes, it may change due to various reasons. In such cases, modern day human rights became as a more subjective topic to be discussed. Although everyone has a responsibility to protect the rights of each and everyone as human beings, some intentionally neglect it.

In this paper, pay attention on the teachings of the Buddha, found in the canonical text of discipline called *Pārājikā*. A Bhikkhu or Bhikkhunī who violates any of the *pārājika* offense is cause to permanent expulsion from the order. The four *pārājiks* encourage monks and nuns to maintain an ideal priesthood and protect the human rights while practicing celibacy.

Keywords: Human Rights, ethics, discipline, pārājikā , priesthood,

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A study of the Language variety used by the Afro- Sri lankan Community of Sri Lanka. (Living in Puttalam, Kalpitya and Trincomalee)

Nirosha Kulasekara¹

Afro-Sri Lankans (also known as Kaffirs or Kapiri) are a very small ethnic group in Sri Lanka who are descendants of African workers and soldiers brought to the island by Portuguese and British colonists. The research was focused on identifying the nature of this language and studies it linguistically. The majority of the words found in the songs sung by members the Afro-Sri Lankan community in Puttalam. The other Afro- Sri Lankan communities living in Trincomalee and Kalpitya were also included in this study. The research included data from approximately 50 male and female participants who volunteered from these communities. The research instruments used in this research were speech recordings and interviews. The Puttalam and Kalpitiya communities are the descendants of African soldiers and domestic slaves of Portuguese colonists. Those in the Trincomalee community are the descendants of African colonial soldiers from the British Royal Forces. The ancestors of these Africans were brought to Sri Lanka during two different eras by two different colonists. Only the communities living in Puttalam and Kalpitya use this language in their songs called the African Manja. Some scholars have identified their language as a Sri Lankan Portuguese Creole. Some of the Portuguese Burghers living in the Batticaloa District in Sri Lanka use the Sri Lankan Portuguese Creole as their second or home language. The Afro-Sri Lankans use it only in their songs. The research proved that the variety of the Portuguese creole used in Puttalam and Kalpitiya is a mixture of Portuguese and Sinhala words. The Portuguese Creole used in Batticaloa by the Portuguese Burghers is Portuguese mixed with Tamil words, leaving slight differences in lexicography and pronunciation. The Afro-Sri Lankan community living in Trincomalee is descend from British colonial subjects who had no access to the Portuguese language and do not know the language at all. The language data was analyzed based on a structural theoretical framework. The research finding was documented and preserved for future research and references.

Keywords: Kaffir, Language, Culture, Afro- Sri Lankan, Linguistics

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A study on the Evolution of the Bhavanga Citta.

Ven. Suriyawewa. Wijayawimala

When we critically examine the early Buddhism it seems that through causal theory (*theory of Paticcasamutpada*) it has represented a scientific and profound explanation regarding the existence of being after the death. On the other hand, it is undoubted that the existence of consciousness (*vinnāna*) which is subjected to the dependent origination, was very incomprehensible, subject matter to the Indian society which was clinging on to the externalism and materialism. Therefore, it can be guessed that metaphysical questions became popular on this background. The Buddhist confraternity which was broke or scattered into various sects after the great demise of the Buddha, was free from the view of soul theory and it can be recognized that they have attempted to represent various definitions to prove the concept of 'Person' (*ekapudgalāyana*) giving special attention to the basic teachings of the Buddhism such as Four Noble Truths, Trilakshana (*three characteristics*), Karmic law, Rebirth (*punarbhava*), Emancipation (*nirvāna*) etc. and this tendency was directly influenced by the contemporary social background. As a result of that 'pudgalavāda' was accepted by the sect of Sammitiya and 'existence of three moments (*Traikalika Asthitva*)' was accepted by the Sarvāstivāda tradition. Here, they created the concept that 'all subject and object matters are existing'. The other sect, who accepted only the Sutras as substantial were as 'Sautrāntika.' They followed early Buddhism, represented the concept of 'Bīja' and affirmed the identity and authenticity of existing being. The sect of Yogācāra has resolved this problem through 'Ālaya consciousness.' In this matter, the Theravada response was 'Bhavanga citta.' The concept of bhavanga is not discussed directly in early Buddhism but it is noteworthy that this concept is influenced by the certain factors of the early Buddhism. So, there can be seen an attempt to explain the words 'bhavasota and vinnānasota. therefore this studying is aimed at examining the relationship between Bhavanga citta and its Early Buddhist Formation.

Key words: Present situation, Early Buddhism, Evolution, Bhavanga.

An attitudinal study on perceptions of group work when teaching English as a second language in Sri Lanka

K S R Silva

Since the 1980s, Sri Lanka, following trends in language teaching and learning in the West, has adopted the Communicative Approach in its endeavor to teach English as a second language to its student population. Group work is one of the strategies used under the Communicative Approach and its use in teaching English as a second language has been firmly established by sound pedagogical arguments. Past research has showed the benefits of group work, but there is also a body of evidence which implies that group work may not yield the same positive results in non-Western contexts as in Western contexts. While the reasons for this suggestion include many practical difficulties such as lack of resources and large classes, there also seems to be attitudinal issues regarding group work which are culture-bound. It is suggested by the body of research that due to cultural notions such as adherence to adult authority, expectations of teacher roles and preference for accuracy over fluency, students might not have positive attitudes about group work or the benefits it provides for their learning. Several studies have been conducted to examine the effectiveness of the Communicative Approach in Sri Lanka, but there is a serious dearth of studies which directly examine students' attitudes about group work. Since learners' attitudes are a major determinant of the success of a teaching strategy, this study explores Sri Lankan students' attitudes about group work. A questionnaire is distributed to a sample of 50 students, and the data collected is analyzed quantitatively to find out whether Sri Lankan learners have positive or negative attitudes regarding group work. The findings of this study shed light on the attitudes about group work among Sri Lankan students in particular and Asian students in general.

Key words: Group work, Attitudes, Culture, Communicative Approach, ESL

An Explication of Behavioural Impediments Vis-a-Vis Meditation: A Buddhist Perspective

R.M. Rathnasiri¹

Transgression of precepts, all aspects of immoral conduct, vices, wrong livelihood (*micchājīva*), irregularities in practice etc. are behavioural impediments to meditation.

Three kinds of wrong conduct – wrong conduct in body (*kāya-duccaritaṃ*), in speech (*vacī-duccaritaṃ*) and in thought (*mano-duccaritaṃ*) as mentioned in the Sangīti Sutta cause major behavioural impediments to mental development. As elaborated in the Sāleyyaka Sutta, one is made impure by bodily actions in three ways and by verbal actions in four ways. It is extremely arduous for one who is impure by evil behaviour to concentrate his or her mind because the basic mental strength or purity of the mind that is required for the initiation of concentration is absent and even the inclination for meditation may not arise in the mind which is not receptive and malleable for unification of mind (*cittassa ekaggatā*), the central requisite for meditation. All sorts of behavioral impediments occur due to the extreme noxious trio—intense greed, ill-will and delusion (*abhijjā*, *vyāpāda* and *micchādītṭhi*) which nourish the five hindrances (*pañcanīvaraṇa*), the most inimical impediments to meditation.

Thus, the mind tainted by detrimental behavior impedes psychological strength such as non-remorse, joy and rapture, etc., is psychologically disturbed and inwardly agitated, cannot reinforce the outward suppression of harmful mental factors and suppress the inward malign mental factors that impede concentration and mindfulness.

Moral restraint and moral purity which establishes sound outward conditions which are conducive to inward progress avoids inimical behavioural impediments to mental development. As a whole, the absence of behavioural impediments enhances the purification of morality endowed with psychological strength, helps practitioner remain psychologically undisturbed and inwardly calm and maintain concentration during the practice.

Keywords: Behavioural Impediments, Unification of Mind, Meditation

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Are we different from you: changing facets of Kaffir community in Sri Lanka

Punsara Dissanayake¹ and Priyadarshani Premarathne

Kaffir community is a unique socio-cultural group in Sri Lankan society. Though the term “kaffir” is a derogatory term for African people, Sri Lankan Kaffirs use it to introduce themselves. They have accustomed to Sri Lankan culture while preserving their racial identity. A majority of Kaffirs can be seen in Puttalam currently. The objective of this study was to identify their cultural changes and contemporary problems in their daily life. A qualitative descriptive study has been conducted at the Siranbiadiya village in Puttalam area from August to December 2014. 42 villagers from the total of 22 family units including men and women considering their age were selected randomly with their consent. A pretested interviewer-administered questionnaire and focus group discussions were used for data collection. Data were analyzed using SPSS and thematic analysis.

The majority of the sample was females (54.76%) and most of the villagers were daily paid labourers. Only 08% of the community was engaged in government and private sector and 76.2% earn below Rs.10, 000.00 per month. The mean age was 35 years and the majority had not completed secondary education. In the study sample, 73.8% were Sri Lankan kaffirs and others were Sinhalese due to the cultural assimilation through marriages. This community has high integration with catholic religion and rituals. Among them, attitudes in younger generations are different from elders towards the perseverance of their culture because of the social stigma. Elders are worrying about dying culture and their unique identity while younger generation pays resistance to the cultural preservation. Name changes, following popular cultures and migrating to cities are high among youth. This community faces different psycho-social problems due to economic hardships, social stigma and discriminatory social interactions. Increasing demands of their culture in the academic field also has created problems for them as they become a hotspot for researchers. This study reveals Kaffirs seeking sovereignty of their community. Provisions for reducing social stigma, cultural acceptance and financial assistance for livelihood development are vital to achieving the psycho-social well-being of this community.

Key words: Cultural assimilation, Kaffir, language, social integration

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Athenian ‘Cleruchies’ of the 5th century BCE: An analytical study of colonization as a political and military strategy of the Athenian imperial administration.

W.M.U.I. Weerakoon¹

‘Cleruchies’ are generally defined in scholarship as special Greek colonies in which the settlers received a plot of land and retained their original citizenship. The epigraphs of Classical Athens indicate a widespread popularity of the imposition of ‘cleruchies’ by Athens in the territories of the rebellious subject-allies towards the middle and the late 5th century BCE. However there is no intricate separate study in scholarship on ‘cleruchies’ and their importance in the Athenian imperial administration in the 5th century BCE. This research is intended to identify the factors that led to the widespread imposition of ‘cleruchies’ and their strategic importance in the Athenian empire. Moreover this study examines the nature of relations between Athens and the subjects upon which ‘cleruchies’ were imposed. The information for this qualitative research is gathered by the analytical study of the epigraphs and numismatics of the particular period and by the critical examination of the primary and the secondary sources. The findings of the research suggest that the allotments of the land received by the settlers in the cleruchies contributed to the ascendancy in their property classes which thereby increased the Athenian citizens’ eligibility for military service. The geographical locations of the cleruchies indicate the strategic importance of the settlements in securing the corn-routes and the sea trade routes of the Athenian empire. Moreover the cleruchies with permanently resident settlers acted as political and military defense during the Peloponnesian Wars against Sparta as well as the non-Greek communities. The findings of this study have helped to identify the political and military strategies implemented in the earliest western empire to control the autonomy and the sovereignty of the allies. This inquiry also shed light on the manner in which the earliest western empire strengthened her political stronghold while advancing her socio-economic interests at the expenses of the subjects.

Key words: Cleruchies, Greek colonies, Athenian empire, Classical period

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Attitudes of teachers of English in higher education towards peer observation of teaching

S.M.A. Priyadarshanie

This paper aims at investigating the attitudes of a group of teachers of English in higher education in Sri Lanka towards peer observation of teaching (PO). Simultaneously, it highlights the significance of practising PO as a method of teacher evaluation and assessment when teaching English as a Second Language (TESL) at tertiary level. Thus, the prime objective of this study is to point out PO as an important concept of TESL at higher education institutes. Moreover, this study contributes positively towards changing the preconceived perceptions towards peer observation of teaching by discussing the impact of peer observation towards enhancing English Language Teaching (ELT). To achieve all these objectives, a survey was conducted with a group of fifty teachers of English from several universities and higher education institutes in Sri Lanka. Also, they have been following a Post Graduate Diploma on TESL at a leading state university in Sri Lanka. Both quantitative and qualitative data were gathered from the participants from questionnaires and informal interviews. Accordingly, majority was found to prefer PO as its feedback is constructive and supportive. Furthermore, most accept that PO promotes cooperation and teamwork among the colleagues making them to reflect on themselves to be more innovative in ELT. Thus, the majority considers PO as an effective method of observation that expands the professional development in TESL. On the contrary, a few participants consider PO to be inconvenient and embarrassing when they get observed by their peers while teaching in the classroom. In conclusion, the study recommends PO to be an effective teaching strategy that facilitates both the observed and the observer to achieve professional development while the learners too benefit from it.

Keywords - peer observation of teaching, teaching English as a Second Language, higher education institutes

Awareness of Factors Affecting Listening Comprehension: A Study Based on English as Second Language Learners

K.P.P.B. Jayasinghe

Studies on Second Language Listening comprehension have been a neglected area and in recent years, there has been an increasing interest in researches related to several fields including factors that influence listening comprehension. The current research has therefore been designed to investigate the ESL learners' awareness of factors that affect listening comprehension in the context of Sri Lanka. The study is based on 100 intermediate students following Higher National Diploma in English at Advanced Technological Institute, Kegalle. The students were given seven factors that affect listening comprehension to name top three factors that affect their listening. According to the frequency of mention, three major factors as speech rate of the audio, accent used in the audio and vocabulary knowledge of the listener are selected to research the factor that affects listening comprehension most. The students were grouped into several groups as students who listened to different speech rates ; fast, average and slow, and as students who listened to different accents ; British English and Sri Lankan English, and as students with different vocabulary levels; better and less vocabulary knowledge. Two listening tests were conducted and all groups were made to listen to the same tests followed by a questionnaire. The findings revealed that students with better vocabulary knowledge have performed most and students with less vocabulary knowledge have performed least. Fast speech rate has resulted in second lowest scores while the difference in the accent has not caused a major impact on the performance. Discrepancies in students' perception on the factors affecting listening comprehension and their performance were identified as students perceived accent as the factor that affect listening most while the performance suggested that vocabulary knowledge is the factor that affect listening most. Accordingly, it was concluded that the students are unaware of the factors that affect listening comprehension.

Key words: Listening Comprehension, speech rate, accent, vocabulary knowledge, awareness

Buddhism for International Peace

B.K. Ankanamge

People across the world today live in fear, anxiety and mistrust. There are nations who possess enough weapons to destroy our world many times. They exist in constant mistrust of each other. The extent of mistrust, hatred, jealousy and rivalry is such that even a world war is likely to erupt any time. It is time for us, therefore, to get alarmed of the nature of threat the mankind is faced with and do something about it. It has to be a multi-dimensional in approach and as many parties as possible should be communicated for cooperative action.

Sociologists have observed that even religions have functioned as a factor in causing wars in spite of the potential they claim in creating peace. Almost all religions at their conceptual level are rich in peace concepts. And the present leaders, no doubt, would agree that, in spite of those beautiful concepts, enough harm has been done to global peace in the name of religion. It is high time, therefore, religions join together in whatever possible way to bring peace to the world.

Buddhism especially has enormous potential in this, as the Buddha has inculcated us with powerful concepts and shown their practical benefits at all levels. It was why at the dispute over his relics arose among some Indian kings a Brahmin intervened and asked how unreasonable it to fight over the relics of a master is who was called santivado - a peace philosopher.

At theoretical level Buddhism presents peace promoting teachings which are constructive in creating mind-set of peace within individuals. For instance, the Buddhist technique of metta meditation begins with self love and culminates in universal love. At practical level the concepts of compassion, non hatred, forgiving, sympathetic joy, equanimity etc are helpful to evade friction.

The Buddha even went to the extent of leaving the monastery and going to forest all alone when there erupted disunity to incite his Sangha to be united. Moreover, he intervened and made peace when some kings were ready to fight. It is recorded that the Buddha had extended his peace mission to international level by involving in a peace mission in Sri Lanka. It was the inspiration of the Buddhist teachings on peace that made Emperor Asoka give up war and become a peace promoter. Thus the Buddhists are equipped with ideal peace philosophy and have encouraging past examples in peace missions.

Unfortunately, though, even some Buddhists are presently accused of not keeping to their ideals in their behaviour. Recent reports in a few Buddhist countries have made some critics accusing them as intolerant and aggressive. So we have to be self critical to some extent and reflect on the ways of actively engaging in world peace. It is time to be more positive in achieving peace, learning from the past and envisaging a graceful future.

Key words – Buddhism, Peace

Conducting Spoken Tests are still a big challenge in most of the ELT scenarios

D.K.L.C. Deveniguru

According to the latest ELT trends, improving communicative skills has become the major concern of most of the English language teaching programmes. Although it has become the major concern, testing oral skills has not yet proven to be an easy task. Oral tests can often be difficult to design, administer and mark. Therefore, there are number of aspects that we need to pay attention to, when designing, conducting and marking oral tests. Starting from the availability of necessary resources, elicitation techniques, marking criteria that are used to score the test and the authenticity/the validity of the test have predominant roles to play in achieving the intended goals of the test. Although all the above mentioned aspects are necessary to reach a better outcome, this research gives much focus on the authenticity of the oral tests that are conducted in ELT scenarios. In order to retain the authenticity, the test needs to be related to real-life situations. Yet, this technique is not completely fault proof as defining 'the real-world' can be problematic sometimes. On the other hand, scoring these oral tests can be challenging as they allow subjectivity when assessing and this again affects the authenticity of the test. Thus, the major intention of this research is to find out the reasons as to why it is difficult to retain the authenticity of the oral tests, by observing the data gathered through a speech test, that was conducted in a particular Sri Lankan university context and analyzing the information provided by the examiners of the test in the form of interviews and questionnaires.

Key words: Oral test, Authenticity, Real-life situations, Subjectivity when assessing

Detective Deconstructed: Miss Marple as a subversion of the traditional Detective discourse

K.M.K.S.M Bandara

Detective fiction is a genre that gained critical acclaim at an unprecedented rate over the past few decades. The way in which it engages with the reader intellectually is a significant reason behind the increasing popularity of detective fiction. According to Merja Makinen, a standard assumption underlying detective fiction is that it is a male based genre because of its ratiocinating puzzle-solving element. This genre also foregrounds the discourse of “the Other” where women are assigned subordinate roles as exemplified by Mrs Hudson and Irene Adler in “Sherlock Holmes” where women are stereotyped as emotional and sentimental. Such portrayal of women in the detective novel reinforced the binary of Male/ Female where positive traits were associated with the Male whereas those which are negative were ascribed to the Female. It conveyed the idea that rationality and logical thinking are associated with masculinity whereas emotions and sentimentality are inherent in femininity. The female detective has striven to subvert the dominant patriarchal discourse by proving her abilities of deduction which are supported by knowledge seeking techniques unique to women, thus deconstructing the male/female binary opposition. Using textual analysis as the methodology, this research foregrounds the way in which Miss Marple in “The Body in the Library” subtly subverts the patriarchal discourse in detective fiction which was the dominant social discourse of her time where knowledge- seeking methods were characterized by rationality and deduction which were regarded as essentially masculine traits. To that end, the gender-related methods of seeking knowledge propounded by Belenky et al inform this research, highlighting the epistemological perspectives occupied Miss Marple. This conceptual framework is further informed by the principle claims of feminist standpoint theorists where epistemic privilege and social-situatedness of the marginalized are acknowledged thereby further deconstructing the male/female binary based on power and knowledge

Key words: The Other, gender, power, knowledge, feminist standpoint theory

Effectiveness of ELTU Course for First Year Undergraduates in Accomplishing L2 Requirements

L.M.Thakshila, S. Jayasekara

If new entrants to the university have less competency in the English language, they find it challenging to follow degree programmes in the English medium. Students of the beginners' level classes at ELTU are reluctant to express themselves when they are not supported through the use of their first language (L1). Research indicates that English as a Second Language (ESL) students have an alarmingly high dropout rate in language acquisition in many countries (DelliCarpini, 2008). The reasons vary from personal dislike towards lessons to less competency. This means that the lecturers must be able not only to teach the syllabus, but also to make the concepts and content comprehensible and interesting to ESL learners in their classrooms. In this opinion based study, the research question is if university ESL courses accomplish the second language (L2) requirements of students whose degree programmes are been conducted only in the English medium. In gathering data, 110 first year students of the Faculty of Commerce and Management representing the beginners' level classes in the English for Professional Purposes course were given questionnaires. Questions included the students' feedback towards the class formation, curriculum and teaching methods. Self-evaluation of students' L2 competency before starting the course and after completing the course was also sought. Furthermore, unstructured individual and group interviews of students were conducted. Data indicated that the majority was interested in the course and that they would attend lectures even if attendance was not compulsory. Preference to follow the degree in the English medium due to career requirements, improvement in L2 competency in terms of writing, speaking and understanding the language and confidence built in a learner-friendly English environment in proficiency-based classrooms were mentioned by a majority of the participants. Among the recommendations were to include a field trip, etiquette learning and more basic grammar for further efficacy. Significance of this study is to recommend improvements for the syllabus and pedagogical approaches in the ESL course enabling low-proficiency students to accomplish L2 requirements.

Key words: Efficacy, ELTU course, Less performers, L2 Requirements

Effectiveness of English Language Teaching in Government Schools in the Gampaha District

R.W.D.N.K.Rajappakse

Even though every child commences to learn English from their nursery, even after thirteen years of education of the English language, there are students who are unable to pass the General English language paper in the Advanced level examination. This study provides an insight into English language teaching at government schools in the Biyagama Divisional Secretariat in Gampaha district. The purpose of this study is twofold. It sets out to examine firstly, whether the English language teaching methodology that is used is effective and secondly, to suggest strategies that can make English language teaching at government schools effective. Thus the primary purpose of this study is not only to report and inform but also to investigate and identify beneficial ways of teaching English. The study adopts a mixed method approach, comprising both qualitative and quantitative data: questionnaire and lesson observations. Both data collecting methods are carried out to investigate whether government English teaching classrooms still follow traditional teaching methods and comprise teacher-centered classrooms rather than following communicative language teaching in a learner centered classroom. The findings of the study indicate that a change in language teaching methodology and consequently a change of teaching and learning should take place in these selected government schools.

Key words: English Language teaching, effectiveness

Error Analysis on the Usage of Prepositions by the ESL Learners in Writing Tasks

Ramani Ratnamali Jayasinghe¹

This study examines the patterns of three types of errors: omission errors, substitution errors and addition errors in the usage of prepositions by ESL (English as a Second Language) learners in writing tasks. The study investigates the following: whether the school children in lower grades tend to omit prepositions more often than in higher grades whereas in higher grades, they substitute prepositions more often than in lower grades; whether omission errors are more in [+Functional] prepositions than in [+Lexical] prepositions; and whether the category criterion will be preserved in substitutions. Sinhala speaking ESL learners make errors in prepositions mainly due to cross-linguistic differences between their first and second languages, and as a result, many difficulties occur in ESL teaching. A pool of 260 Sinhala students from four grades (Grade 4, Grade 6, Grade 8 and Grade 10) of two government schools in Sri Lanka participated in this study, and the Survey Method was followed to collect data. A picture story writing task where prepositions needed to be abundantly used was administered to these students and they were instructed to identify the story depicted in the pictures and to present it in writing. The errors in each prepositional category: Adverbial prepositions, Semi-lexical prepositions, Particles and Functional prepositions were counted. Each error was further categorized as omission, substitution and addition. Percentage of each error type in each grade was calculated to find out which error types were most frequent and for which category. Substitution errors were further analyzed to see whether substitutions respected categorical distinctions. Quantitative analysis was carried out using SPSS 2012, and interaction effects and category-wise analysis were computed. Findings concluded that there were more omission errors in the lower grades and more substitution errors in higher grades, and the learners generally respected the category rule in their substitutions. These findings can be used in the ESL classroom to facilitate teaching English prepositions.

Keywords: ESL, Omission errors, Substitution errors, Addition errors

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Filtration of literary texts in the case of an intermediate language: A study based upon French literary works translated into Sinhalese.

Upekha.D.Rajapaksha

Each year, thousands of literary works are being translated into Sinhalese, due to the popular demand. The Sri Lankan demand for world literature has grown to such an extent that there is a trend of literary works of renowned authors being translated into Sinhalese. This is not restricted to English literature, but also other world literatures like Russian, French, Spanish, German, Chinese etc. However, not all these works are directly translated from the source language to the target language. Most of the time, English acts as an intermediate language. Hypothetically, a literary text which has been translated through an intermediate language has a higher risk of filtration and losing its original flavour, in comparison to a direct translation.

This filtration could be twofold: linguistic and cultural. The content of the original text could be filtered, altered due to linguistic or cultural differences between the source and the target language. In the case of an intermediate language, this could lead to incomprehensibility or misinterpretation of the original text.

The researcher intends to identify the linguistic and cultural factors which may lead to filtration of the original text and to determine the reasons for these factors. It is possible that the filtration may occur due to cultural or linguistic ignorance of the first translator, the second translator or, it could be voluntary.

The researcher intends to follow a qualitative approach for the research, which includes a detailed analysis and a comparison between original text and the translated text. Only literary translations will be analysed as they are more challenging due to their linguistic ambiguity. For this purpose, a selection of Sinhalese translations (එමා බෝවාරි - සිරිල් සී පෙරේරා, සිටුවර මොන්ත ක්විස්තෝ - කේ.පී කරුණාතිලක, පෙම්බර මිතුරා - පසන් කොඩිකාර, පෙන්ගුවින් දිවයින - ටී.අන්ද්‍රාදි , සාරා - අශානි රණසිංහ) of the works of selected French authors (Madame Bovary- Gustave Flaubert, Le comte de Monte Christo – Alexandre Dumas, Bel Ami – Guy de Maupassant, L’ile de penguins – Anatol France, Elle s’appellait Sarah – Tatiana de Rosnay) would be selected and analysed, followed by interviews with the translators.

Key words: filtration, intermediate language, literary translation, originality, source language, target language

Fine arts specified in *Kavsilumina*

I. R. Nadeeka Sandamali Pieris¹

Sinhalese poet had vast source for the subject matter to draw from the stories in *Jātakas*. They were well suited for the theme of a *Mahākāvya*. The best example for a *Mahākāvya* in Sinhalese is the *Kavsilumina* that is based on the story *Kusajāthaka*. This poem was highly influenced by Sanskrit Poetics and some stanzas in this poem depict fine arts. The term “Fine Arts” refers to an art form practiced mainly for its aesthetic value and its beauty rather than its functional value. But the definition of fine arts is obliged to change in time. However fine arts include painting, sculpture, architecture, music, dancing and literature. The major objective of this study is to review fine arts referred to in *Kavsilumina*. The research problems are: What are the fine arts? How are fine arts specified in *Kavsilumina*? What are the purposes specified in it? The research was based on primary and secondary data. Data has been collected mainly from literary sources. This research is the outcome of a field survey is qualitative research method. Here this study obtains information of ancient history close by *Kavsilumina* and fine arts analyze verses in *Kavsilumina*.

Key words: Fine Arts, Kavsilumina, Mahākāvya, Jātakas.

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Friendship, Justice and Sri Lanka's Armed Conflict: A Study of Somaratne Dissanayake's *Saroja*

Nalin Jayasena¹

Writing about a nation emerging from three decades of violent conflict requires one to rethink identities irrevocably altered by the dehumanizing effects of war. Since the conclusion of the armed conflict in May 2009, there has been much talk of reconciliation but more often than not, the debate has been framed by the discourse of terrorism, on the one hand, and human rights or war crimes discourse on the other. This paper attempts to circumvent such regressive approaches to reconciliation by focusing on the politics of friendship by examining Somaratne Dissanayake's first feature film *Saroja* (1999), which focuses on the subversive friendship between a Sinhala schoolteacher and a Tamil Tiger.

In Chapter 8 of *Nicomachean Ethics*, Aristotle argues that friendship is the very foundation of a unified nation. "Friendship seems too to hold states together, and lawgivers to care more for it than for justice; for unanimity seems to be something like friendship." Not only is friendship the glue that holds communities together but friendship also supersedes the law, because Aristotle views friendship as the cornerstone of unity. He goes so far as to say that where friendship exists, there is no need for justice; however its converse, justice without friendship, is futile. Indeed as a nation emerging from a protracted civil war, contemporary Sri Lanka is a space where minority communities demand that state-sanctioned injustices be redressed, but if justice without friendship is counter-intuitive, it is imperative to forge new partnerships between these two communities through a redefinition of Sinhala-Tamil relations.

Further reinforcing this link between friendship and justice, Jacques Derrida remarks, "friendship plays an organizing role in the definition of justice, of democracy even." Derrida's reiteration that "fraternity" is located between equality and liberty and is the foundation of the French Republic has particular resonance to postwar Sri Lanka. If Tamil militancy in Sri Lanka was launched on the demand for equality (and liberty) for Tamils, to invoke the concept of fraternity or friendship is to highlight that reconciliation cannot occur in a cultural vacuum.

Keywords: Friendship, Justice, Armed Conflict, Somaratne Dissanayake, Saroja, Film.

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GABRIEL OKARA'S POETRY FUNCTIONS AS A VEHICLE OF AFRICAN IDENTITY.

Ms.C.T.Joe Inparaj¹

Gabriel Okara is the first significant English language African poet to write in a modern style. With Okara, Nigerian poetry in English matures and taken a big leap forward. Conflict of identity is often emerged as an issue in Okara's poems. It is not only contradicts with the western and African concepts and values but also develops the identity of Africans with its own history and perspectives. He was greatly concerned about the African people and their thoughts, though he is caught between two different worlds. Okara appreciates his native culture and tradition by accepting the alien culture as it is. This quality symbolizes the rich Africanness which is carried by Okara in his literary work. Throughout his poems he discusses both the cultures but it is evident by appreciates his own culture; he has already made up his mind on Africaness. Okara's treatment of the indigenous theme shows his sense and reverence for his people, no less than his sense of nostalgia for and rootedness in Africa. He has been extremely successful in capturing the moods, sights and sounds of Africa by using the rhythms and sentence patterns of Ijaw speech, oral tradition, folklore, mystery, fairy-tale, local imageries symbolism and metaphor of traditional quiet. The objective of this paper is to shed light on the vitality of African identity, reflects in Okara's poetry. This study is limited to some of his poems which mirror the African identity. In order to achieve this objective, a qualitative analytical methodology is undertaken. The selected poems were examined on the basis of his own opinion. Criticisms were collected from secondary sources such as books, journals and articles. A close examination of Okara's poetry reveals that there are many concerns which make the world understand the African ethos and traditions. His poetry tells the Africans' experiences in Europe as protests/ satires/ lyrics confirming their own identity as well.

Key words: Africanness, Identity, Indigenous Nostalgia, Vitality,

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Gender sensitivity in Human security definition

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Human security is a relatively new concept that emerged to address the modern security threats that cannot be addressed via traditional security approaches. Narrow definition of human security address two main paradigms; Freedom from Fear and Freedom from Wants while broad sense discuss about livelihoods and food security, health, psychosocial well-being, enjoyment of civil and political rights and freedom from oppression, and personal safety, in addition to absence of conflict.

The actors who are responsible for ensuring Human Security largely neglects gender issues; thus, women as adolescent children, widows, mothers and elderly women face number of difficulties and hardships several environments where protection of Human security becomes significant. The prime reason as believed by researcher is the absence of gender sensitivity of the Human Security Definition. This absence creates practical implementation and strategic policy of Human Security incomplete and ineffective.

The aimed research intent to identify if Human security definition has underpinned and had addressed the importance of including gender sensitivity in Human security concerns thus vulnerability of women has been recognized to provide a better focus and sufficient security for women.

The existing definitions of Human security will be analysed in order to understand the gender sensitivity of existing definitions. United Nations definitions, definitions from Academic papers, definitions of governments will be primary taken into the consideration. This will be an explanatory research that tries to identify reasons for absence of gender sensitivity in Human security, plus will be a constructive research as it will recommend how the definition needs to be improved.

This study will broaden the definition of Human security, in order to include the gender sensitivity of the approach that will facilitates actors to implement Human security strategies in more effective manner. Also the intellectual mainstreaming of the concept will be enriched as it becomes more integrated and multifaceted with gender studies.

Key words: Human Security, definition of human security, Gender sensitivity, International relations, Freedom from wants, Freedom from Fear

Gira, Hansa messenger poetries on the basis of ideological political conflict in the kotte era.

H. A. Gihan Madhusanka¹

Gira and Hansa have been categorized as messenger poetries (In Sinhala "Sandesha Kawya") written in Kotte era. When comparing the texts, it seemed Gira was a older than Hansa and latter was a sharpen answer to the former. Both writers selected Parakrmabahu six as a major character of them. Buy their true ambition was to elucidate the greatest leaders of Buddhist monks. Gira poet selected Thotagamuwe Sri Rahula thero and other selected Wanarathna thero of Keragala. Many critic considered the two great Bikkus presented two fractions and the poets paid their attention the ideological battle of them and the fractions were named Wanawasi (living in the forest) and Gramawasi (living in the village). In this paper seeks the ideological battle as not mere religious one and it reflected political and social battle in the period. There was critical internal crisis among the royal members in the Kotte kingdom. And as a result of it King Parakrmabahu six recommended kingship to his grandson, prince Jayabahu. Prince Sapumal, the son of the king for second queen defeated Arya Chakrawarthy, the Tamil Ruler of Jaffna and the prince Sapumal was respected among the citizens. Thotagamuwe Sri Rahula, attempted to bring Jayabahu as king but other great Bhikkus and civilians, attempted to bring Sapumal for leadership. The Gira poet praised Thotagamuwe Sri Rahula and other for Keragala Wanarathna in this context. In this study, we have taken the Gira and Hansa ideologically conflict that represents a serious political background.

Key Words: Parakrmabahu six, Thotagamuwe Sri Rahula thero, Wanarathna thero of Keragala, Jayabahu, Sapumal

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Globalize Economy and Sinhala Language Identity

C.D.H.M. Premaratna¹

Many ethnic groups operate within a strong historical identity relative to the religion, language, and culture. This identity contribute to instilling group norms, expectations, and preferences. Today the world is becoming a global village within the globalization of a new economy parameter. The globalize economy is bound up with transformations of language and identity in many different ways. In this research it is expected to probe how the globalized new economy has resulted in the commodification of language and identity of Sinhala language. According to the language policy of the Democratic Socialist Republic of Sri Lanka of 1978, Sinhala language was prescribed as one of the National and Official languages. At the same time the government introduced the open economy system. As a result of that English language was selected as trade and commercial language by the private sector. In 1987 according to the 13th amendment to the Constitution, English was introduced as one of the Official language and mediums of instruction in school and higher education. Under this situation English language became an essential factor for the Sinhalese speaking people to meet their language needs in education and other functions. This problem influences two areas: the language situation and the language planning. Information about the language situation includes the essential social, political, and economic structures which condition the language planning and which constitute the setting for its implementation. Data was collected from official reports and questionnaires given to the Sinhalese speakers. This language policy and globalized economy will affect the language shift and its identity.

Key words :- globalization; identity; commodification, language shift, language planning

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History, Identity, and Herstory: A Simultaneous Reconstruction and Deconstruction of the Dravidian Movement

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In the scholarly work surrounding the Dravidian Movement in Tamil Nadu, India, none seems to focus on the particular experience of the upper-caste woman's. This paper attempts to document this narrative. Based on the memories of five upper-caste women through a series of telephonic interviews conducted between August - September 2015, the study attempts to discover their remembered history, or rather, their 'herstory' of the Movement, and locate their understanding of it. Their narrative draws on their experiences between the period of 1933 - 1967. Working with their memory is not simple, because: a) their memories are constructed, not just through lived experience, but through the narrative and textual experiences that they have engaged with afterwards; thus, the study attempts a symptomatic reading of their memories. b) the researcher is a native Tamil-speaker.. The sample contains the researchers relatives. Drawing on the framework of Pandiyan, Chakravarti, and V. Geetha, the investigator looks at the existing history of the genesis of the Movement - the creation of the Tamil identity through the framing of the Brahmin and the non-Brahmin, the Aryan and the Dravidian identities. Then, contextualise this framing of identities in the memories that were articulated by the interviewees, who broadly remembered the movement along three lines - i) protests against Brahminical Hinduism; ii) language protests - particularly, protests against Sanskrit; iii) the class struggle that they remember to have been the underlying cause. Ultimately, their lived experiences and memories are framed by their own identities, and thus, the study attempts to draw on their memories of growing up as women, framed within V. Geetha's history of the inherent women's struggle in the Movement.

Keywords: Dravidian movement, history, identity

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“Hoos’ and Hurrahs in Jumbo vs. Betel Final”

Sandamali Uthpala Gamage¹

This study attempts to investigate the common morphological processes used in forming neologisms found in Sri Lankan print media. The morphological processes adopted in this study are affixation, compounding, borrowing, acronymy, clipping and blending. The Oxford English dictionary defines neologism as “a new word or expression” or the coining or use of new words. Neologisms are formed daily in most languages around the world. Nowadays, many Sri Lankan ESL learners tend to use these neologisms in their writing compositions and in their conversations knowingly or unknowingly with the advent of social sites. Furthermore, many journalists make it a practice to use at least one or more neologisms in their newspaper articles to expand their vocabulary. Thus, the main purpose of this study was to find out how word formation has become an important process in the growth and expansion of the English vocabulary. The research problem of this study was what are the morphological processes frequently used in forming neologisms found in print media. The neologisms were collected from a selected weekly paper “The Island”. The data collection lasted throughout the month of August, 2015. 40 neologisms were found after a careful observation of the editorials in “The Island” newspaper. These selected neologisms were classified into their respective word classes. After that the meanings of the selected neologisms were mentioned based on the context in which they have been used in the selected material. Finally, the morphological processes of the selected neologisms were identified and analyzed by the researcher. Based on the analysis of the data it was found that “affixation” is the most frequently used morphological process in forming new words whereas “acronymy” is the second most frequently used neologism in forming neologisms. The study also showcased that “blending” is the least frequently used morphological process out of the six morphological processes identified in the study. It was clearly evident from the findings that English is a language that is subjected to constant growth. In conclusion it is clear that the morphological processes that have been used for decades are still being used in the formation of neologism.

Key Words: Morphological Processes, Neologism, Print Media, Sri Lankan, Word Class

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How Indians are using Social media for news consumption: A study

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The rise of the Social media has been phenomenal in India in the recent decade, giving rise to various ways and patterns of news consumption, across media platforms for readers and audiences. Facebook, Twitter, Youtube and blogs have become popular platforms for news sharing among people. Several studies also indicate that mainstream media journalists are increasingly engaging with Social media where news breaks first and intense debates and deliberations on important events takes place consequentially. The popularity of Social media is such in India that people across all age groups are beginning to view it as a source of news. At the moment, Facebook and, to a lesser extent, Twitter, dominate this intersection of social media and news. Facebook has made several moves to shift the content of a user's News Feed towards hard news — towards providing the RSS-like news experience people never knew they wanted. Facebook started with juicing the popularity of breaking stories by its favorite publishers inside the News Feed and Paper, its news app, but today, the company is taking its news efforts one step further. Facebook is announcing Newswire, an official Facebook page you can follow that aggregates the best original content posted on the site. If you'd like, you can even follow the channel on Twitter — which is precisely the service Newswire seems designed to compete with. With technology evolving at such a rapid rate, with a strong impact on Journalism and consumption of news, It is important to examine the role of social media news consumption among the users of social media. Although social networking sites have primarily been seen as social tools connecting friends and family, news organizations have discovered the value of these sites to make stories go "viral" and get more traffic to their own sites. So users who may have signed up for Facebook primarily to connect with others could inadvertently see news content posted by friends in their network or subscribing to news feeds. The potential result? On one end -- unintended exposure to news and diversity of viewpoints -- and at the other end -- exposure to like-minded viewpoints resulting in an ever increasing cycle of selective exposure. How do different social networking websites stack up when it comes to news? How many people engage with news across multiple social sites? And what are their news consumption habits on traditional platforms? This study examines and analyzes the characteristics of news consumers and the size of their population across social networking sites. The study is based on a survey conducted among the users of Social Media in South India and aims to analyse how people consume news on Social Media.

Keywords: Social media, journalist, news

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How Sri Lankan students gain the proficiency in correct Chinese pronunciation

S.Nimali Priyangika¹

Correct pronunciation occupies a prominent place in the course of learning a Foreign Language as fluency of a particular language cannot be achieved only by learning its grammar. At present Chinese Language is learnt as a Foreign Language by many Sri Lankan learners due to the diplomatic relations existed between Sri Lanka and China. In the course of learning a Foreign Language numerous difficulties are congregated by the students and the problems encountered in the process of correct pronunciation claims a prominence in this study as the influence of the mother tongue of its learners affects in the procedure of learning the proper pronunciation of Chinese Language. This study mainly focuses on the aspects of how Sri Lankan students master the correct pronunciation and it analyzes the major reasons for mistakes made by the Sri Lankan students in the process of gaining its correct pronunciation. It is admitted to minimize these problems to a certain extent to achieve the expected targets in learning the appropriate pronunciations of Chinese language. The learners, representing all the academic years, who learn Chinese as a Foreign Language at the University of Kelaniya were given an opportunity to read words, sentences and paragraphs in Chinese Language and their pronunciations were recorded. These audio clips were compared with the pronunciations of the native speakers and the major mistakes made by the Sri Lankan students were observed through the comparison. The influence of mother tongue, failure to grasp the correct pronunciation, negligence, the impact of teaching atmosphere were highlighted as the major reasons for making these mistakes.

Key words: Chinese Language, Pronunciation errors, Mother tongue, Reasons

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Impact of Social Media on Mainstream Journalism

B.N. Neelima¹

The single most important transformation in Journalism in the present age is the impact of Social media on mainstream news production, distribution and consumption. Journalists are using Social media as a professional tool, to assess top news trends, to obtain sources, research stories, break news online, obtain feedback and for community engagement. Stories are breaking on facebook, twitter and Youtube and are finding their way into the mainstream media. Opinionated blogging has also been a major transformative force in Journalism. This study explores how mainstream journalists are utilising social media for finding story ideas and reporting news, apart from building audience involvement and obtaining reader feedback. 300 journalists from South India participated in the study that obtained their responses to various issues concerning social media and Journalistic practice. As focus of news shifts from being source centric to reader centric, community engagement becomes important for any mainstream Journalist. The challenge for most of the traditional Journalists and media organisations therefore, is to respond and adapt to the evolving landscape of Journalism, increasingly being dominated by the social media. This paper examines how Journalists from mainstream media are using Social media at various levels of journalistic practice. It draws upon data obtained from Journalists and from previously published research. Some of the conclusions from this study are; the growth of Social media in India has been phenomenal in the past few years and people are increasingly turning to social media for news. Journalists therefore face the challenge of adapting to changing news consumption patterns of people and learning to use the Social media for keeping pace with evolving forms of Journalism, Journalists are facing a myriad of problems, ranging from breaking news that occurs on social media first, verifying the accuracy of stories on social media, checking source credibility, using social media as news source and keeping the audience engaged, Social media has become a source of news for Journalists They are also using more user generated content in their news stories, Journalists share their opinion more freely on Social media than on mainstream media. They also feel that their influence has grown through social media and they are able to obtain instant feedback from readers, the pace at which Journalists are beginning to embrace Social media tools like Twitter, Blogs and Facebook is quite slow and a majority of them are not making an optimum utilization of these media networks in their journalistic practice. Reasons range from lack of awareness, inability to keep pace with evolving technology and inability to blend presence on social media with their organizational goals. The study also found that mainstream Journalists are trying to understand the challenges raised by personal and social media. Issues such as editorial control; ownership of intellectual property; the blurring of professional and personal spheres; and lack of awareness on how to make optimum use of social media for journalistic purposes are impending factors.

Keywords: Journalism, Social media

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Impact of Testing in the English Language Teaching Classroom.

S.G.S. Samaraweera

Although language forms and grammatical structures are taught in the classroom to the students of Extension Courses in English program at the University of Ruhuna, it is difficult to realize whether they have understood them properly due to lack of a proper testing mechanism. It is advocated that testing plays a significant role in English Language teaching classroom. "Language teaching and learning and testing and evaluation are interdependent" (Samaraweera: 2009). "Language testing involves both linguistics and psychology because it is concerned with both language and learning. It is also experimental because it sets up learning tasks in order to study behavior; and also evaluative because it makes use of statistical techniques in order to study that behavior" (Davies (1968:01). But what the most effective way to test and evaluate is remains still debatable. The learners have individual differences. The teacher should understand the individual differences of the learners in order to understand their strengths and weaknesses. It is easy to understand the strengths and weaknesses of the students with the help of a proper testing and evaluation mechanism. Therefore this paper discusses the viability and validity of incorporating a proper testing and evaluation mechanism in the English language syllabus of my teaching situation, Extension Courses in English program at the University of Ruhuna. This paper suggests that a proper testing and evaluation mechanism should be maintained throughout the lesson so that the teacher can test and evaluate each student and give feedback to each student. The sample comprised 70 Certificate course students of the Extension Courses in English program at the University of Ruhuna. They come from a variety of socio-educational backgrounds. After implementing a proper testing and evaluation mechanism, Questionnaires, interviews, and observations were used to gain an in-depth insight into students' attainment of language skills. The findings of the study depicted that testing and evaluation plays a significant role in the language classroom. Thus the findings are significant in providing information to the relevant authorities so that they can prepare curricula to teach the English language effectively for the educational, professional and socio-economic benefit of the students.

Key words: Testing, Evaluation, Language, Teaching, Classroom

Impact of the proficiency in English language on the students' performance in their main subjects

P P Alahakoon, W A Udeshinee ,A.E. Peiris

As ESL teachers at Sri Lanka Institute of Information technology (SLIIT), we observed that the students' performances are in different levels not only in English but also in their main subjects. Since the degrees offered by SLIIT are conducted only in English, we hypothesized that there is an impact of their proficiency in English language on their performance in the main subjects of the degree programme.

In pertinent to the observations made by us, this pilot study aims to investigate how the proficiency of English language affects the students' performance in the main subjects of their relevant degree programme. The hypothesis of this research study is that there is a correlation between the proficiency in English language of the students and their performance in their main subjects.

This study was carried out among a selected batch of 220 first year IT undergraduates of Sri Lanka Institute of Information Technology. The students were grouped into three according to their levels in English language proficiency. The results that these students obtained for English Language Skills, Mathematics and Database Management System-1 at their first semester final examination were analyzed quantitatively. Further, question papers (of each subject) of 5 students were randomly selected from each ability group and they were examined qualitatively. The essay type answers of these papers were examined to see their grammar, sentence structures and vocabulary usage. The researchers' objective here was to see whether the students had used the correct language to discuss the answers.

The findings of this research show the impact of the students' proficiency in English language on their performance in main subjects of the degree programme. Moreover, this research identifies key factors that can be investigated in further research.

Key words: students' performance, proficiency in English language, correlation

Individual Health care and vinaya regulations in Buddhism

R.M. Jeewanthi Kumari Rajapaksha¹, H.M.I.Prasanthi²

This paper draws attention on individual health and vinaya regulations. The medicine is one of the essential parts of the basic human needs. According to Buddhism basic needs can be divided in to four parts. They are *Cīvara*(Cloths), *Pindapāta* (food), *Senāsana*(Shelter), *Gilānapaccaya*(Medicine). Medicine is the science that deals with preventing, curing, and treating diseases. Vinaya also takes higher place in Buddhist order. Dhamma and Vinaya can be taken as the master of Buddhist followers.

According to *Besajjakhandaka* of *Mahāvaggapāli* pointed out there are some medicine for diseases. Buddha admires the use of natural things as medicine. This paper will discuss about some exceptions of *Vinaya*. Though *Vinaya* is considered as important, in case of a sick person, he is allowed not to fallow not to follow strict regulation because of his illness.

The main reason for the health diseases is the unethical behavior of the human beings. Today with commercialization and modernization people pollute the environment. As a result of that some kind of dangerous problems arise due to the greed of human beings.

To conclude that medicine is the most essential part of monks and nuns. So according to Buddhist teachings, when someone ill *Vinaya* rules are not applicable to the particular person as a special case.

Key words -: *Besajjakhandaka, Mahāvaggapāli, Dhamma, Vinaya, medicine*

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Integrating Computer Assisted Language Learning in the English as a Second Language Class Room

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The rapid advancement of technology has changed the way the world operates. Technology has invaded the every facet of human lives. Reformation of various kinds is taking place in the field of education due to modern technology. Integrating computer technology into education is the latest trend in the modern world. With technological development, computer technology has been incorporated in language learning and teaching. The objective of this research is to investigate whether Computer Assisted Language Learning (CALL) is effective in improving the four areas of language skills: listening, reading, writing and speaking in English as a Second Language class room (ESL) with a special reference to selected undergraduates of the Faculty of Humanities and Social Sciences of the University of Sri Jayewardenepura. The data was gathered through a questionnaire of thirty two items and conducting a Pre-test and a Post-test during the CALL programme in the Language Laboratory of the Department of English. Each skill was tested in the Pre-test and the Post-test separately through the use of CALL. According to the findings of the questionnaire 100% of the participants agreed that CALL is an effective way of learning a language in ESL class room. The research findings from actual class room tests showed that 88% of the participants could improve speaking skills, 74% of students could develop listening skills and 64% of the students could improve reading and writing skills. Out of the number of fifty students 82% of them could improve their language proficiency through the use of Computer Assisted Language Learning. The research findings prove that CALL provides a better learning environment, helpful in improving the four areas of language skills of the learners in the ESL classroom.

Key Words; CALL, ESL, Technology, Proficiency, Skills

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Language matters: an analysis of the language of disability within selected political speeches of the elections of 2015 in Sri Lanka.

S. Hettiarachchi¹, M. Ranaweera², D. Walisundara³, L. Daskon-Attanayake⁴

Introduction: Arguably, language has the power to formulate, promote, uphold or deter stereotypes. Politically, this year was significant in its representation of persons with disabilities within the electoral system. Within this historic context, there were references made to persons with disabilities with the political speeches by politicians of the main political parties.

Aim: To evaluate the representation of persons with disabilities within selected political speeches of the past year in newspapers and on television.

Methods: A representative sample of speeches from the main political parties were reviewed with reference to the representation of persons with disabilities. A conceptual and linguistics analysis was undertaken.

Results: The results indicate the use of references to persons with disabilities to evoke humour, in derogatory terms and to propagate negative stereotypes as objects of pity.

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Learning as a Factor of Influence in Fashion

G.M. Ranathunga

Learning has been a pivotal tool in influence in fashion since early history. A former society in Sri Lanka (Kandyan Era from 15th century to 1815) was investigated and analysed to understand how learning affected in influencing foreign fashions. During the Kandyan era many Western and Eastern fashions were influenced the society. The Kandyan era provides the best example to understand how people learnt different foreign fashions in order to communicate different messages. Royalties and elite were the best learners who wore exotic Western and Eastern influenced mixed dresses. Objective of the research is to find out that how learning affected in influence in fashion. Methodology of the research was based on 'Grounded Theory Method'. Information are gathered and analyzed in a way that logical philosophies are generated. The methodology uses set of procedure of data analysis, begins with observational study then proceeds by memoing, coding, concept mapping to discover patterns of concepts. Then finally the theory was compared with formally established theories in order to ensure the validity. Two theories have been ascertained through the research. According to many temple murals and written records foreign costumes had been considered by the King as a symbol of displaying their high social status to the society. The dress became the vehicle to reach the high society. Exquisite dresses were coupled psychologically with good social status. Kandyan royalties and elite fast accepted foreign influenced dress and they gradually learnt through their experience that these innovative dresses were able to provide benefits. This learning procedure is well matched with the formally established theory, classical conditioning described by Russian physiologist Pavlov (1927). As well as, it is clear that often foreigners were subjected to thorough observation by locals. Elite observed the King. According to this influencing procedure a person is chiefly learnt through observation and processing of information. This learning procedure is well matched with the theory, 'Observational learning' by psychologist Bandura.

Key words: Kandyan era, Foreign Influences, Fashion, The royalty, Elite, Observational Learning, Classical conditioning

Life Narratives of the Lankan Other: An Exploratory Study of the Jaffna Community in ‘Project I Am’

D D Lakshani Willarachchi ¹

Life narrative is a comparatively novel field of interest in Sri Lanka though life narratives are always woven into the socio-political fabric of the nation. In the Sri Lankan context biography and autobiography have traditionally been categorised as two separate genres in life writing, but certain life narratives tend to blur those boundaries. *From This Point Forward*, a photography exhibition by Luka Alagiyawanna, *My Mother’s Village*, a documentary life narrative by Aaron Burton, and *Project I Am* by Kannan Arunasalam are examples of works based on Sri Lankan lives which blur the boundary between autobiography and biography.

The focus of the present study, **Life Narratives of the Lankan Other: An Exploratory Study of the Jaffna Community in ‘Project I Am’** is *Project I Am* (www.iam.lk) which creates a digital archive of life narratives of Sri Lankan elders where the fluidity of the narratives and the genres are reflected through the blurring of the boundary between autobiography and biography. Based on the life narratives, memories and experiences of Sri Lankan elders, the project strives to answer the questions “Was there a time when people in Sri Lanka didn’t describe themselves as Sinhalese or Tamil, Muslim or Burgher? Or at least when these identities weren’t foremost in their minds?” (Arunasalam, 2010). The reviews and articles on the projects have looked at the project merely as a repository of stories that help Sri Lankans understand their differences and a project promoting reconciliation with hardly any focus on the project as a Sri Lankan life narrative; a gap bridged by the present study. The study also focuses on the concept and politics of ‘othering’ with a view to exploring how these life narratives are constructed as Sri Lankan life narratives. For this purpose the study focuses on the segment on people from Jaffna, “I am Jaffa”, since the Jaffna community has a long standing history of being ‘the other’. The inseparability of the concept and politics of othering, and the identity of Sri Lankans show that it is extremely challenging to dispose of the notion of the other as it has become an integral aspect of Sri Lankan identity and a social reality.

Key words: Life writing, Project I Am, Sri Lankan life narratives

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Linguistic Constraints on Tamil-English Code-Mixing

K.Sanmuganathan

In situations of language contact, the point of contact is the bilingual individual, and there are usually at least two interacting language groups, each representing different cultural and linguistic groups. When languages or speakers come in contact, a variety of phenomena are observed, and these include bilingualism, linguistic convergence, borrowing, pidgins and creoles, language switching and language mixing. In recent years, research has increasingly pointed toward the universality of three linguistic constraints on code-mixing: (i) an equivalence of structure constraint, (2) a size-of-constituent constraint, and (3) a free morpheme constraint. The term constraint is here used to refer to restrictions that govern or determine the types of linguistic units that the bilingual can or cannot code-mix in his or her speech.

It is proposed that code-mixing is governed by a host code/guest code principle. This principle says that in a code-mixed discourse involving languages L1 and L2, where L1 is the host code and L2 is the guest code, the morphosyntactic rules of L2 must conform to the morphosyntactic rules of L1, the language of the discourse. In order to determine the rules that govern code-mixing, the researcher involves the combination of qualitative and quantitative method of analysis. The present study draws upon data collected from an interview and a spontaneous conversation between bilinguals in a language contact situation in which the two languages are syntactically very different from each other, namely, Tamil and English. The study addresses the question whether there are structural constraints on code-mixing. The researcher has examined this aspect of code-mixing and found that code-mixing is indeed a ruled governed phenomenon, that is, there are constraints that govern where in a sentence a code-mix can occur and where it cannot occur.

Ke word - (Code-mixing, bilingualism, linguistic units, Linguistic constraints, bilinguals, morphosyntactic rules)

Literature as an inspiration for scientific thinking: An Investigation

S.U.T. Silva¹

Literature is defined as a body of written works. The name has traditionally been applied to those imaginative works of poetry and prose distinguished by the intentions of their authors and the perceived aesthetic excellence of their execution. On the other hand, Science is a creative study that originates in mind before moving forward to experimentation and verification. Thus, a possibility of a relationship can be seen between these two domains; Literature and Science. The main objective of this paper is therefore to identify the impact of literature towards scientific thinking as a source of inspiration to bridge the gap between imagination and reality. Thus, the research problem that is intended to investigate through this study is “How influential are the stories of science for youngsters to succeed themselves as scientists”.

This study was mainly conducted in three stages. In the initial stage of data collecting, primary methodology in focus is to delve in to the lives of 15 highly successful scientists from a wide range of subject fields including physics, biology, mathematics, engineering, astronomy and etc. Data about inspirational literature were extracted considering their statements made during public lectures, interviews as well as concerning the experiences mentioned in their own publications. Secondly, an attempt was taken to analyze all these scenarios and they were classified in to three main categories depending on the reason of persuasion of these scientists to pursue a carrier in science. These three main reasons were revealed as extreme curiosity, desire to serve humanity and the passion of challenging established perspectives. Finally, in the concluding stage, several conclusions were made based on a qualitative analysis while seeing the stimulation of literature on scientific thinking.

Key words – Literature, scientific thinking, imagination, scientists, perspective

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Malayalam Translations of the Qur'an: A Methodological Analysis

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The question of translatability of the Qur'an from its 'unique' Arabic text into other languages is one of the most controversial and enduring themes of Qur'anic Studies and continues to undergo scholarly disputes from the early Islamic centuries till the present. Numerous translations of the Qur'an were mostly revolved around monolingual nations, depending upon the influence of some specific languages, societies and cultures. Thanks to the often multilingual populations, a nontrivial number of societies in India have developed different translations of the Qur'an in their respective local languages.

Malayalam, belonging to the Dravidian family of languages and predominantly spoken in the southwest Indian state of Kerala, is the richest Indian language in terms of the number of Qur'anic translations. Spoken by some 38 million people, this language has more than thirty complete translations of the Qur'an utilizing diverse exegetical and translational methodologies. Present paper comparatively and methodologically analyses selected Malayalam translations of the Qur'an.

In order to have a comprehensive analysis, the researchers have selected six Malayalam works with different approaches of Qur'anic translation; namely,

- a. Traditional approach.
- b. Modern approach.
- c. Ahmadi approach.
- d. Literal approach.
- e. Conceptual approach.
- f. Poetic approach.

The translation works of CN Ahmad Moulawi, KV Muhammad Musliyar, Muhammad Abul Wafa, Muhammad Amani Moulawi, Dr. Bahauddeen Muhammed Nadwi and KG Raghavan Nair respectively were analyzed for the implicational details of each method.

The research relies on inductive, analytic, comparative and critical methodologies to reach the desired results. The study points out that Malayalam language has a distinctive range of Qur'anic translations with different ideological and methodological backgrounds. It also recommends further studies concentrating on their methodology.

Key words: Qur'an Translation, Malayalam Language, Translatability, Qur'anic Exegesis

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Methods Followed in Translating Drama Songs

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A drama is a composition in verse or prose intended to portray life or character or to tell a story usually involving conflicts and emotions through action and dialogue. It is typically designed for theatrical performance. Songs are one of the key features of a drama. They are sung either by the characters or by the singers. When it comes to translating dramatic texts, translating the songs affecting the target audience in the same way as the originals may be supposed to have affected its audience is of paramount importance. The aim of this study has been to identify methods followed in translating drama songs. Selected dramatic texts containing songs and their Sinhalese translations have been used as the primary sources and the songs in the originals and their translations have been compared in order to identify the methods. Literal translation or metaphrase in which the original is directly converted into the target language has been avoided. Sense-for-sense translation is the most common methodology identified. Adapting, adding and omitting certain elements can be seen under this. Structural changes can also be seen in this. It appears that such minor changes are required in order to maintain the sense of the original and to make it more comprehensible to the target audience. Replacing the original song with an existing target language song and adding a song into a dialog which does not contain a song in the original text are the other methods identified.

Key Words: Translation, Drama songs, Literal translation, Sense-for-sense translation, Replacement, Addition

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Morphology and Utility today of the 18th century Temple on pillars (*TämpitaVihāras*) of Sri Lanka

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The structures built on a wooden platform resting on short granite pillars or stumps reflect a unique type of image house from the 17th to 19th centuries called *TämpitaVihāras*. The Samkathana Projecton documenting evidences of the *TämpitaVihāras* has collected data visiting some 90 sites in Kurunegala, Kandy, Kegalla, Matale, NuwaraEliya, Rathnapura, Galle, Matara, Hambanthotaand Anuradhapura Districts. This type ofsingle room very small image housewith a wooden super structure seem to emerge in the early Kandyan Era. From over 92*TämpitaVihāras*, already visited and documented in this project,I shall select a cross section to demonstrate structural morphology of *TämpitaVihāras* according to regions. The reports of the Department of Archaeology mentions 240*TämpitaVihāras* appearing as archeological sites which have been gazetted, butonly 50 edifices have been discussed. These structures have been renovated and published. They are mostly in the Gampaha District: The published study of *SriLankaweTampitaViharaSampradayaby* the Department of Archaeology (1999) edited byGaminiWijesooriya, *Architecture of TampitaViharaya in Sri Lanka* by D.P.Chandrasekara and D.M.K.D.Silva(2002)and *Heritage Building of Sri Lanka* by Nimal De Siva and D.P.Chandrasekara, (2009)mostly refer to the same edifices, at times using material of other research even without reference to them. There has been no comparative study of these over 240*TämpitaVihāras*, most which are in a sad state of decay and some have been demolished or the features of this unique stone and wooden plinth cemented over, that the identification today becomes strenuous. The utility of *TämpitaVihāras* as “Image Houses”, “Preaching Halls”, “Chapter Halls”, “Temples of the Tooth Relic” and a planned“Royal Palace” in Dodantale, leads to the question of protection and conservation of these single room image houses.

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Negombo Fishermen's Tamil and Sri Lanka Gypsy Telugu: Two Sinhala-Influenced Dravidian Minority Dialects from the Sinhalese Heartland

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Negombo Fishermen's Tamil (hereafter NFT) and Sri Lanka Gypsy Telugu (hereafter SLGT) are two less-studied Dravidian dialects from very different sociological contexts in majority Sinhalese areas of Sri Lanka. Both of these dialects have undergone significant grammatical and lexical changes as a result of contact with Sinhala (NFT and SLGT speaker communities are both bilingual, with Sinhala as the language used outside of intimate community circumstances), but both the degree and nature of these changes are very different, owing to differing degrees of intensity of contact and the very different sociological roles played by these communities vis-à-vis the Sinhalese. In the case of NFT, which this researcher documented via intensive in-field elicitation and recording of conversation in Negombo in 2000-2001, the Sinhala-influenced lexical and grammatical changes are pervasive. Not surprisingly, the NFT speaker community, largely Roman Catholic, self-identifies as Sinhala and frequently intermarries with Sinhalese in the Negombo area. They are typically fisher folk who are an integral part of the local economy. By contrast, the SLGT speaker community living in Kudagama near Anuradhapura (where this researcher began field documentation in February 2001), although now largely Buddhist, maintains itself as a "gypsy" community apart from the Sinhalese; many in the community still practice the traditional occupations of snake charming and monkey dancing, and endogamy is still preferred. SLGT, while importing many Sinhala words, has not imported nearly as many grammatical features as has NFT. This paper compares and contrasts the sociolinguistic circumstances of these two less-studied Sri Lankan minority communities, and concludes that contact-induced language change is primarily oriented towards lexical borrowing in cases of weak societal assimilation (SLGT), and towards morphosyntactic borrowing in cases of strong societal assimilation (NFT).

Keywords: Tamil, Fishermen, Gypsy

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Origin of Classical Sanskrit

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It is controversial to determine whether Classical Sanskrit is a refinement of Vedic language or an artificial language independent from Vedic language. Keith and others have advocated the former view, i.e. a modification of Vedic language, whereas Chattergi, Sukumaran Senn and some others have explained latter, i.e. Sanskrit is an artificially created language by Grammarians like Pāṇini. There are enough evidences for sustaining these two views. Providing that this latter view is correct, additional problem arises that whether Sanskrit belongs to Indo-European language family spread over Euro-Asian language zone or not. To elucidate the fact, the concepts like phonetical variation of Vedic and Classical Sanskrit, morphemes, conjugation of verbs and so on will be linguistically analysed in this paper. Besides, views of modern scholarships too on this regard will be examined logically. The analysis of the current facts show that Vedic language is comparatively complicated while Classical Sanskrit has systematic refinement. Sanskrit on good ground appears to be an edition of Vedic language, and the artificial characteristics might be a result of this editing, which concludes that Sanskrit is an extension of Vedic language.

Keywords: Classical Sanskrit, Vedic language , Indo-European language, Pāṇini.

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Perspectives on Plagiarism in Asia: An exploratory comparative study in Indonesia and Sri Lanka.

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This study was conducted in order to elicit responses from postgraduate (PG) students who are also lecturers about their unique experiences and perspectives about plagiarism. The issue of plagiarism is current and one that is far from clear-cut in settings where a second/ foreign language is the medium of instruction. This small scale study sought to explore attitudes of academics toward plagiarism in two Asian countries, that of Indonesia and Sri Lanka. The research tool comprised a two part structured interview schedule which elicited responses regarding each participant's views and experiences of plagiarism as both a lecturer and PG student. The sample for the study was limited to five participants from each of the countries. The findings from the study revealed that the two groups of lecturers from different countries shared similar experiences and attitudes about plagiarism. Both groups reported that plagiarism is common and even a habitual practice among undergraduates and PG students. They likewise viewed it as an offence to be addressed. Plagiarism was observed to be a result of a variety of reasons. However, the Indonesian participants felt that student writing being in a foreign language was definitely a factor which needed to be considered before branding their work as plagiarized, while the Sri Lankan participants did not present such responses; rather, they felt that plagiarism took place even in first language writing as well. Interesting views that arose from the study include a questioning of 'originality' and 'controlling' of knowledge. Regarding plagiarism in spoken discourse, responses were ambivalent as it was felt that it could take place unconsciously. The study also found that in both countries that there is no clear or consistent national stance on plagiarism and that there are no real policies in place to educate students about plagiarism or how lecturers should deal with plagiarism.

Key Words: Plagiarism, Academic Writing, Student Perspectives

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Poetics and Noetics in the *Therī gātā* in terms of their presentation of ‘Transience’

Waruni Tennakoon¹

Therī Gātā is a recreation of the stark truth of transience the *Therīs* have inevitably experienced in the secular world in the form of poetry. The philosophy presented through their understanding of transience and the rhetoric through which they have presented their experiences of renunciation include poetics and noetics into these poetry of the nuns at the time of the Buddha. *Thērī Subhā*'s verses where her eyes which are appreciated to be similar to a 'kinnari' inside a mountain and to a bud of a blue lotus, have immediately been turned to be a little ball set in a hollow with tears and eye secretion could be pointed out as a beautiful example of the blend of poetics and noetics in the *Therī gātā*. The present work thus expects to study various instances in the *Therī gātā* where poetics and noetics have been used, with the main objective of finding out the possibility for them to be categorized with the mainstream literature of the present world and thus introducing them to the school and university syllabi. The research thus falls into the category of qualitative type of research and thus an extensive study of the related literature to the topic under concerned was carried out. (words: 202)

Key words: Therī gātā, poetics, noetics, transience, literature

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Portraiture in the Buddhist Image House

Asoka de Zoysa

Stone Inscriptions (*Sellipi* and *Tam Lipi*) and donor inscriptions by kings (*Sannasa*) and ministers (*Tudapath*) on copper and palm leaf show an unbroken tradition from the early years of Buddhism in Sri Lanka how the upper strata of the *Radala* (Royalty) were responsible for the erection and maintenance of temples and monasteries up to the 19th century. These records have been useful to identify some of the figures of laymen on the walls of the Image House as donors of that particular temple. They usually stand closest to the entrance of the sanctum and sometimes are shown carrying offerings to the Buddha or worshipping him, adjacent to the main image. The tradition of depicting monks who nurtured a certain tradition of Teacher- Pupil-Tradition (*ŚiśyaśiśyānuParamparawa*) or mentored the building of a particular Image House can be traced back to the mid 18th century in the Kandyan Region (*Udarata*). Individualized figures are seldom in the Kandyan School of Art (*UdarataSampradāya*). As such, a convincing identification of a statue or painting is impossible. Nevertheless, regarding the identification of the figures of *Duttagāmini* at the Anuradhapura Ruvanveliseya and of Parakramabāhu I at the Polonnaruwa Pothgul Vehera, no questions are raised today, although we do not have any epigraphical evidence for identification. Similarly the figure of King *KīrtiSrīRājsamha* in cave no 2 of Dambulla seem to be undisputed sans evidence in situ. A similar statue in the pose of worshipping is seen in cave no 3 is left without identification. With the help of external information regarding the administration of the area and the mentor of the temple, two figures have been identified in the *Medawela Raja Mahāvihāraya* as *Dunivla Nilame* and the image in the *Dambadeniya Raja Mahāvihāraya*, too has been identified as *Mēgastenne Adigar*. In the *Dankirigala Len Viharaya* cave temple the local tradition is cherished that the *Lewke Disāwa* is shown on the wall facing the Buddha Statue. As no inscriptions are available for identification, in these early royal figures, the naming the images is disputed. It is however intriguing that the figure of a King appears in mans if these Kandyan temples such as Danture, Debaragala, and many *Tampita Viharas* and the even Temple of the Tooth. As the King *KīrtiSrīRājsamha* is not recorded to have supported these temples through a donor inscription, the figures have not been regarded as the initiator of the Revival Movement. The first question that arises, is if these identifiable figure due to a fixed iconography, can be regarded as “Portraits”. Shifting to the 20th century, at the *Thimbirigasyāyalsipathanārāmayaportraits* of the members of the Family of Pedris are shown, which strictly follow the rules of portraiture practiced by British painters. Although the paintings of the Image House haven been attributed to Sarlis, these somber full seize portraits facing the sanctum juxtapose the Sri Lankan mural art of the 20th century and portraiture introduced by the British. The scene of laying of the foundation to *Kelaniya Rajamahāviharayaby* Helena Wijewardana and members of her family, is an interesting mixture of two styles. Although the body of the Buddhist monks and laymen are not individualized in this scene, Solias Mendis superimposes faces that seem to have carefully copied photographs of donors and mentors. The murals of the *Meddepola Rajamahāviharaya* which are dated to the first decade of the 20th century, some mentors too seem to have portrait like features. A trend can be carefully observed in the 19th and 20th century. The tradition of painting the face as a portrait of a deceased chief monk to adorn the entrance to his funeral pyre in the south also testifies for a tradition that evolves out from a further development from photograph to monochrome painting. The over 100 temples documented in the Samkathana Project on documenting evidences of Discourse Communities have revealed many individualized images of donors and mentors which can be regarded as portraits. The paper argues that portraiture was not solely introduced to Sri Lanka by the British Academic artists, but may have had a tradition that can be traced to themid 18th century.

Positive Aspects of Indian Classical Music on Child Personality Development (Psychological Approach)

Chandana Ruwan Kumara¹

The basis of this project is to identify how Indian music can be used in a positive way to develop personality of children of ages 10-13 years. Many researchers have generally examined why music is so important in child personality development. However, they have no fundamental ideologies about the different types of age groups of children neither do they identify significance musical styles. Apparently music can be a positive to improve force a mental health, calming, relaxing, and it is an intellectual stimulating source. The method of this project utilized is of the home environment depends and effect to focusing on the following musical aspects as such interest on music, listening to music, learning music, playing musical instruments, and singing etc. How music can make an impact to develop self-confidence, improve expression, concentration and creative mind, knowledge and memory will be studied. The expected results will prove that the different aspects of Indian Classical music play an important role in developing various psychological factors mentioned above. Therefore the present studies focuses on identifying the various aspects and factors of North Indian Classical music in improving the personality of children of the ages between 10-13 in Sri Lanka.

Keywords: personality development, musical aspects, psychological factors, home environment, children

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Practicing Four Noble Truth and Stress Management on Buddhist psychology

G. Upul Kumarasinghe,

The four noble truths are a main teaching in Buddhism that describes the way life and attaining true happiness. It is theoretical technic that guide refrain from mental suffering. These truths can be believed and applied by anyone, Buddhist or not for any suffering. The first two noble truths, the truths of suffering and truth of the origin of suffering, really reflect the nature of our present life. The truth of cessation and the truth of the path that leads to cessation are the methods to eliminate suffering and its origin.

Stress is our mental, physical, and emotional reactions to any perceived demands which continue for a long time may lead to a diagnosis of depression or anxiety, or mental health problems. Stress is very harmful and it should be managed.

The four noble truths can be applied to stress management. The first truth is stress. We must understand what stress is (*Pariññeyyaṃ*). This is logical that before taking medicine, we must understand our illness. The second truth is cause of stress. The truth of origin should be abandoned (*Pahātabbaṃ*). There are many causes of suffering or origin of stress. The third truth is stress management. It should be realized (*Sacchikātabbaṃ*). Final truth is path leading to stress management. It is with the noble eightfold path as it needs to manage the stress (*bhāvetabbaṃ*).

Considering above facts, in this paper, my chief endeavor is to present a comparative study about practicing the four noble truth and stress management on Buddhist psychology.

Key words: The Four Noble Truth, Stress Management, Buddhist psychology

Pronunciation Problems in French: A Case Study of First Year Students at University of Kelaniya, Sri Lanka

Chandeeda Gunawardena

The present research, a case study, analyzes pronunciation problems encountered by First year students of French at University of Kelaniya. The study is based on the assumption that the pronunciation errors were systematic and did not occur randomly and they reflect the interference of the different prosodic patterns of the learners' native language. Data were collected at three occasions when the present researcher worked as a lecturer in 2012. First, following the contrastive analysis hypothesis, potential pronunciation difficulties were identified and then the contrastive analysis hypothesis was validated by the error analysis. The informants used for this study were 20 undergraduates who were at the time of the study studying French as a foreign language in the first year at University of Kelaniya, Sri Lanka. They were chosen using random sampling method. All participants had a homogenous linguistic background. All subjects had completed their secondary education in Sinhala medium and during which they had also learnt French. A battery operated audio tape recorder and a 120-minute blank cassettes were used for recording. A list comprised of 150 words representing all French phonemes was used to diagnose pronunciation difficulties. The recording was conducted individually in the faculty language lab and each recording approximately took ten/fifteen minutes. After the completion of recording, the recordings were replayed to identify common errors which were immediately transcribed using the International Phonetic Alphabet. The errors were classified into four categories; developmental errors, interference errors, fossilized errors and unique errors. The findings revealed that the majority of the errors were interference errors related to French vowels and initial clusters. The fundamental errors showed that similarities between languages do not always facilitate the language acquisition. The findings of the research will be important to teachers, students, curriculum designers, policy makers and other fellow researchers in Sri Lanka.

Key words: case study, errors, French, pronunciation, Sinhala

Poetics and Noetics in the *Therī gātā* in terms of their presentation of ‘Transience’

Waruni Tennakoon¹

Therī Gātā is a recreation of the stark truth of transience the *Therīs* have inevitably experienced in the secular world in the form of poetry. The philosophy presented through their understanding of transience and the rhetoric through which they have presented their experiences of renunciation include poetics and noetics into these poetry of the nuns at the time of the Buddha. *Thērī* Subhā’s verses where her eyes which are appreciated to be similar to a ‘kinnari’ inside a mountain and to a bud of a blue lotus, have immediately been turned to be a little ball set in a hollow with tears and eye secretion could be pointed out as a beautiful example of the blend of poetics and noetics in the *Therī gātā*. The present work thus expects to study various instances in the *Therī gātā* where poetics and noetics have been used, with the main objective of finding out the possibility for them to be categorized with the mainstream literature of the present world and thus introducing them to the school and university syllabi. The research thus falls into the category of qualitative type of research and thus an extensive study of the related literature to the topic under concerned was carried out. (words: 202)

Key words: Therī gātā, poetics, noetics, transience, literature

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Representations of Vithiya Sivaloganathan's Rape, Murder and Protests against Its Violence

Upeksha Jayasuriya¹,

Incidents of rape become highlighted in a nature ad hoc and are replaced with other current news or dominant narratives while the issue remains dormant until another rape incident is reported by media. In such a context, the current study ventures to conduct a multimodal discourse analysis on media representations of rape, murder of Vithiya Sivaloganathan and protests against its violence in online newspaper articles, photographs and web posts. In so doing, it aims at examining whether discourses that underwrote the representation of Vithiya's rape, murder and protests against its violence are mere representations of the gender issue or it caters for other agendas. The study unravels that most of the media representations deviate from portraying the gender issue for prominence is given to other dominant narratives and ideologies that overpower representations of the rape incident. While certain articles in newspapers and websites represent Vithiya's rape as a 'Tamil problem', others bring into focus the culture of impunity in Jaffna as the root cause for such atrocities. It was also discovered that media solely catered contemporary political agendas whereas the dearth of articles representing rape as a gender issue too, either victimize the victim further or erase the perpetrator from the act of rape. Thus, cultural, political and other dominant narratives seem to submerge the act of rape as a gender issue. Although today's visual media, in conjunction with new technology, emerges from a consumerist culture and thereby claim to be lacking a truth value, the current study provides an insight into how dominant ideologies overpower diverse representations of rape.

Key words: Rape, Discourse, Representation, Media

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Religion of Humanity: A Study on the Jagannath Cult

Binodini Das¹

Syncretism is an essential feature of the Jagannath cult which synchronizes with humanistic approach spreading the message of love, peace and mutual harmony. Till now, it is difficult to ascertain the exact date of the origin of the cult, but the empirical evidences corroborate to the fact that the cult has been growing since time immemorial, assimilating and incorporating the theological and philosophical concepts of tribal, Aryans, Dravidians, brahmana, Jaina, Buddhist, Śaivites, Śāktas, Vaishnavas, Sauras, Gāṇapatyas, Sikh, Islam and Christianity. The principal object of the present paper is to analyze 'how the cult exhibits humanitarian approach promoting socialism in the one hand and fostering love, peace, compassion, fraternity, equality, amicability and religious harmony among the masses on the other'; to establish the fact that the cult is syncretic one in which the essence of other religions are infused. Jagannath cult promotes Odia nationalism. It is seen that one of the rulers of the Bhoi dynasty, called Rama Chandra DevaII, who embraced Islam attached importance for safeguarding the security of the temple of Puri and the Dieties than to his self security. Even if Utkala Gaurav Madhusudan Das, a Christian, restored the right over the temple of Sri Jagannath to the king of Puri pleading against the British. The word Jagannath is believed to be derived from the tribal god 'Jaganta', one of the ten forms of the god 'Kitunga' who usually resides in a tree of a forest situated in the nearby village. Timber-wood worship was widely prevalent among the tribes of Odisha which is also continuing now-a-days. The Jainas also claims that the name of Jagnnath is derived from the word Jinanath arguing Jagannath is the manifestation of Rishabha Nath because Rishabha means 'Jagat'. Similarly some distinguished scholars claim the evolution of the Jagannath Triad occurred from the 'Triratna' theory of the Buddhist philosophy; the *Budhha*, the *Dhamma* and the *Saṅgha* signify to *Purusha*, *Prakrit* and the union of the two respectively. Sri Jagannath is the manifestation of Lord Buddha is also accepted by a number of Odia laureates. Both the Jainas and the Buddhist claim the car festival of Sri Jagannath symbolizes a strict adherence to their cults. The brahmanic scholars vehemently denounces the theory of the Buddhist origin of Sri Jagannath. In their opinion, the Buddhist Triratna hailed from the word Om(a,u and m). Therefore, the Jagannath is a brahmnlic god whose face is the symbol of *Om*. The prominent black spot inside the round eyes of Sri Jagannath symbolises the '*Chakrakalā*' of the Muslim faith and from his backside is found the 'Cross' sign of the Christians. The cult teaches universality not sectarianism. There is no place for gender-bias, caste distinction, communal conflicts and inequality in the cult. The dietary offerings called '*mahāprasād*' is eaten together without any caste distinction. The unbroken cultural tradition of the Jagannath Cult and curious synthesis of various religious beliefs in the cult have strongly influenced not only the devotees but also the followers of other sects. Each devotee could seek an explanation of the Trinity according to his spiritual enlightenment and vision. As if Jagannath always spoke to the devotee according to that person's religious affiliation and attitude. Thus, the Jagnnath cult is so broad in its scope, that all can be satisfied.

Keywords: Syncretism, Jaganta, Kitunga, Jinanath, Triratna, Chakra kalā

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Should We Say ‘This Is Wrong’? ; Impact of Explicit Corrective Feedback on Language Accuracy

Erandi Kithulgoda¹

In terms of pedagogy, the methodological options whereby a teacher can impart grammar knowledge to students are of two kinds: Learner performance options and Feedback options. Although learner performance options have been an unquestionable part of English grammar teaching in the Sri Lankan L2 classroom, feedback options are not always stringently practiced due to various reasons. The current study explores whether one of these feedback options -explicit corrective feedback- could be employed as an effective form of grammar instruction, in order to improve the English language accuracy of intermediate level English medium undergraduates.

The study while analysing the most salient errors made by 25 undergraduates of Kotelawala Defence University, explored the impact of explicit corrective feedback on those different error types. The methodology adopted was: i) Teacher feedback of classroom language production tasks coupled with pre and post tests, ii) Descriptive analysis of pre and post test data, iii) Quantitative comparative analysis of pre and post test data by employing paired sample t-test and multiple regression analysis of errors.

Findings revealed that out of sixteen types of lexical errors and morpho syntactic errors made by undergraduates, errors related to Sentence structure, Prepositions, Verb agreement, Determiners, Usage norms and formulaic expressions and Pluralisation were the six most salient error types. Moreover, it was revealed that although explicit corrective feedback had no significant impact on language accuracy as a whole in general class room context, it has a significant impact on lexical accuracy (rather than morpho syntactic accuracy). Additionally, it was revealed that the number of words per t-unit had increased after feedback. Hence, it can be assumed that either feedback or continuous language production or both had positively affected language complexity.

Key words: Grammar, Explicit corrective feedback, Errors, Language accuracy

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Socialist Realism in Bharatendu Harishchandra's Play '*Bharat- Durdasha*'

P.V. Sashini Chandrasekara

Socialist Realism entered the literature with the Russian Revolution of the 20th century. It highlights the making of a classless society. Russian and Soviet writer Maxim Gorky was the founder of Socialist Realism. The 19th century writers, Leo Tolstoy and Anton Chekhov also used Socialist thoughts to critically portray various aspects of society in Russian literature. In Hindi literature, Socialist realism was introduced as a concept after the Bharatendu era. Because of the influence of Russian literature, Bharatendu also uses socialist thoughts in his dramas. Bharatendu stepped into the field of literature when Indian culture and society were being destroyed by British colonialism (1850-1885). He broadened the horizons of Hindi literature by writing the play '*Bharat-Durdasha*' in 1876. Through this play he tries to criticize the prevailing political system and the orthodox beliefs of Indian society.

The aim of this research is to explore the use of the concept of Socialist Realism in Bharatendu Harishchandra's play '*Bharat-Durdasha*'. Content analysis was used to collect data with special reference to play '*Bharat-Durdasha*'. According to Nagendra & Hardayal (2009) "Bharatendu highlights the pathetic situation of contemporary India in '*Bharat-Durdasha*'. Through defining the problems of society he tries to abolish evilness which causes social issues." The findings of this paper indicate that Bharatendu did not approve of social divisions based on caste, class and religion. He raises his voice against patriarchal, religious and colonial ideologies that discriminated against women. Bharatendu has condemned these ideologies and suggested social reforms which are indicative of Socialist Realism. Thus he has drawn from Marxist theory which is a novel concept to Hindi literature.

Key words: Socialist Realism, Marxism, Colonialism, Hindi drama, Hindi literature

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Some Observations on Personifying Inanimate Nouns in Sinhalese Language

W.T.Chathuranga Jayamal de Silva¹

In Sinhalese language, personifying inanimate nouns is considered a device required in poetry in order to maintain the poetic quality of the language. However, this device has been used in both poetic and non-poetic works in classical Sinhalese literature. In the contemporary Sinhalese language, this device has gone beyond works of literature and such personified nouns can be seen in the everyday discourse of the language as well. In classical literature, personified plurals have been used in both direct and indirect cases even though it is restricted to the indirect cases in the contemporary usage. Personification can mostly be seen in Sanskrit Borrowings ending with 'ඓ' which require some device in order to distinguish the plural from the singular in natural speech. It is apparent that a limited number of pure Sinhalese nouns are also being affected by this device. Another paramount feature apparent in this usage in the contemporary language is that the inanimate nouns are personified mostly in order to form the plurals even though distinctive plural forms exist. In Sinhalese, the root of an inanimate singular noun is mostly used as its plural form. However, as a result of the overuse of personified inanimate nouns, the formal value of the regular plurals is reduced or nullified and the personified plurals have gained currency as their lone plural forms.

Key Words: Sinhalese Language, Inanimate Nouns, Personification, Pluralisation

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Studying English Literature at the undergraduate level as opposed to studying it for Advanced Levels.

Anupama Madhubhashinie¹

A significant difference can be observed in the ways in which literature is taught for the Advanced Level governmental high school cut-off examination to university, and in University syllabi in Sri Lanka. According to the research findings, students who have been trained to utilize a Language Based Model are encouraged to adopt a new approach informed mainly by Personal Growth Model, and Cultural Model, in University. (Carter and Long, 1991)

The qualitative research was conducted with 11 first year undergraduates of the Department of English, University of Kelaniya, Sri Lanka. The students' approach to studying literature in the University was assessed against the way they studied literature in school.

The objective of this research was to discuss the significance of the way in which literature (fiction) is learnt at the first year undergraduate level of University in comparison to the way in which literature is learnt in Advanced Levels at school.

The methods used were class-room observation, and a structured interview conducted with 11 1st year undergraduates of the Department of English, University of Kelaniya

The findings showcase that the students who study English Literature in the first year of the University took time to accustom themselves to the different pedagogical approach of teaching, depending on their skills of coping and adaptability.

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Teachers' Perception of Language Anxiety in the ESL Classroom

Sonnali Siriwardena¹

A considerable number of second language learners suffer from language anxiety when they enter the second language classroom. A majority of school goers in Sri Lanka study in either in Sinhala or Tamil and are exposed to the English language only in the English language classroom. Students carry this anxiety to the ESL classroom even at the university level. Most of them express their anxiety of the language in different forms, to the extent that students simply refuse to speak in English. The results of earlier research indicates that anxiety was often stated as one of the major causes of decreased motivation to learn, interference to learn and poor performance in the ESL classroom (Horwitz, Horwitz, & Cope, 1986; Gregerson, 2003; Karunakaran, Rana & Manwarul, 2013). This study was designed to explore teachers' perception of how language anxiety affects students' participation in the ESL classroom. 8 English teachers teaching students of four different student proficiency levels of the Faculty of Humanities at the University of Kelaniya were selected for this study. The research methodology used in this study is a mixed approach where a questionnaire and a semi structured interview were used to collect both qualitative and quantitative data. The findings of this study will aid the researcher to contribute to ESL classroom of the University of Kelaniya to improve speaking abilities of the second language learners.

Key words: language anxiety, teachers' perceptions, speaking, ESL classrooms

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Tendency of Learning Chinese as a Foreign Language among Sri Lankan University Students

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Chinese language is the most popular language in all over the world .Chinese Language is one of the five major languages of United Nations Organization and second language of Australia and United States of America. Although, Chinese is not an official Language in Sri Lanka most of the students are learning Chinese as a foreign language. Chinese is taught as a foreign language in Schools, Universities and Confucius Institutes and also number of students are going to china to study Chinese. University of Kelaniya (UOK) offers general and special degree in Chinese and certificate courses. Sabaragamuwa university of Sri Lanka, Confucius Institute of UOK, China Radio International (CRI) Confucius classroom, Lumbini College and Bandaranaike Center for International Studies (BCIS) also conduct degree programs and certificate courses. The aim of this study was to find out the reasons for the popularity of Chinese Language among university students in Sri Lanka. Data for this study was collected from internal students who are reading B.A General and Special degree in Chinese. Data were collected from the annual reports (2011-2015) of department of Modern Languages, University of Kelaniya. Students think studying of Chinese has advantages for finding jobs in tourist industry and getting scholarships for higher education in China. These findings will be help to promote Chinese as a foreign language.

Keywords: Chinese, Foreign Language, Sri Lanka

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The Afrikan Sri Lankans: Culture, Community and Continuity

Lionel Mandy

The Afrikans* currently living in Sri Lanka are a diverse group. Some are students, some are members of diplomatic missions and embassies. Most of these Afrikans intend to return to their home countries once they have attained their goals in Sri Lanka. Those Afrikans who have lived in Sri Lanka for most if not all of their lives have a different and fascinating history. It starts with their origins, which are often unclear. It continues with the name used to classify them- 'Kaffir' (Kapiri in Sinhala)- which is a derogatory term. This history includes the capture, forced migration, and enslavement of their ancestors by Afrikan, Arab, Portuguese, Dutch, and British profiteers and by wealthy Sri Lankan and Indian royalty, merchants, and landholders. It continues with success in surviving and prospering in a foreign land amidst differing cultures, languages, and holding a different status within the caste systems in Sri Lanka. And as we view the Afrikan Sri Lankans today, we see them in communities in various parts of Sri Lanka. They are continuing to assimilate successfully into the larger society while, in many cases, retaining distinctive Afrikan physical features and cultural forms. This presentation discusses the Afrikan Sri Lankans through an Afrikan-centered lens that focuses on their history, present situations, and futures from their own perspective. Afrikan-centered theory uses Afrikan values as theoretical and experiential frameworks through which to understand the trials and triumphs of Afrikan peoples wherever they are found. Photos of members of the various communities will be used to illustrate aspects of the assimilation and acculturation processes in which they are engaged. Questions that remain unanswered regarding their past will be raised and discussed.

*The spelling of 'Afrikans' with a 'k' rather than with a 'c' as in 'Africans' is purposely done. Its use is explained in the paper.

Keywords: Africans, ethnic identity, nationalism

1

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The Brahmins (Temple priests) - A socio – cultural and linguistic perspective.

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The Brahmins are the temple priests of the Tamil community. These casts occupy the higher strata of the cast hierarchy of the Tamil society. The Brahmins consist nearly 1% in the Jaffna Peninsula. Most of the Brahmins in Jaffna are descendants of those who have migrated to Jaffna after the Hindu revival of 19th century which was triggered by Srilasri Arumuganavalar. All the Brahmins are Hindus. They are attached to temples either as priests or as assistants. The Brahmins wear the sacred thread: They are also strictly vegetarian.

Brahmin community significantly differs from others in their lifestyle. They have special rituals connected to their day to day life. There are "Santhiyavanthanam" "Upanayanam" etc. The artisans maintain close connection with India. This cast performs several essential religious duties for the Hindu population of the Jaffna peninsula and their existence is inseparably interwoven with other cast. My Research methodology is Participation and observation, Interviews and discussion.

I shall be focusing demonstrating how the Brahmins rituals practices vary from the others and how they are able to maintain artisan identity in the Sri Lanka.

Key words: - Brahmin, Sacred thread, strictly Vegetarian, Santhiyavanthanam, Upanayanam

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The concept of “Bhramara” in Hindi and Pali Literature

H.G.A. Abeysundara

The use of the “Bhramara” concept can be seen both in “Bhramar Geeth” in Hindi and in Pali literature. “Bhramar Geeth” refers to a tradition of praise poetry that appears in Hindi poetry. The Hindi word “Bhramar” means “Bambara” (Humming bee in English) in Sinhala. The Sinhala meaning of “Bhramar Geeth” is “Bambara Gunjanaya” or “Bambara Geethaya” (“The Humming Bees’ Song” in English). The praise poem, “Bhramar Geeth” is related to the romance between Radha and Krishna. The “Bhramar Geeth” praise poem starts with the arrival of Uddav, a friend of Krishna who comes from the region of Mathura with a letter from Krishna, and meets Radha and other “gopis” who are distressed because of Krishna’s departure. Though critics like Dr. Ramachandra Shakul, Dr. Krishori Lal, and Dr. Dwarika Prasad Saksena have conducted numerous research studies on the “Bhramar Geeth” in Hindi, there is a dearth of studies which offer a comprehensive analysis on whether the “Bambara” concept that appears in the book is given the same meaning in other languages. However, it can be perceived that even in languages such as Pali and Sanskrit, the same “Bambara” concept is employed. According to critics, the Hindi “Bhramar Geeth” concept is created with the influence of Sanskrit poetry. The main objective of this study is to investigate whether the “Bambara” concept in the Hindi book is used with the same meaning in languages such as Sanskrit, Pali and Hindi.

The Hunger Games: A Comparative Analysis of the Novel and the Adaptation-The Depiction the Theme of Power in the Two Media

S.M.N. Dissanayake

The critically and commercially recognized dystopian young adult novel, *The Hunger Games* (2008) by Suzanne Collins is often read as a political tale in which the author examines the various political manifestations of Panem's government. President Snow's authoritarian rule manipulates hunger as a control mechanism to suppress the inhabitants in the outlying districts of Panem. The abundance and absence of food serve as a symbol of power vs. powerlessness. Fear is manipulated as a mode of exerting power and severe punishment methods including the annual Hunger Games pageant. Censored communication, the reality television phenomenon and unimaginable technology used in Capitol further augment the capacity of Capitol's authority. *The Hunger Games* was adapted into a feature film by the American Director, Gary Ross in 2012 which too was both critically and commercially acknowledged. Thus, this study evaluates the depiction of Panem's forms of exerting power in both the novel and its cinematic adaptation. Aspects of the Theory of Adaptation such as elision, addition of scenes, alteration, and cinematic techniques such as camera angles are incorporated to thoroughly analyse the film. Theories related to hunger and reality television are also taken into consideration during the content analysis of the two media. The findings proved that the adaptation has aptly portrayed the theme of power using a variety of camera techniques and alterations to the plot of the fictional effort. The additions of scenes and modifications in the cinematic version have enhanced the verbal demonstration of the theme of power in the source novel. The elision of certain incidents in the cinematic counterpart does not have an impact on the overall demonstration of the methods of power used by Panem to oppress the districts.

Key words: The Hunger Games, hunger as a control mechanism, power and control, adaptation, reality television and media manipulation

The impact of gender in learning English as a Second Language; A case study in the faculty of Management at University of Ruhuna.

N.M.A.D.W.C. Gunarathne

The number of female students is rapidly increasing than male students in universities in Sri Lanka showing the contribution of women in future workforce. Entering to new life of university, equally both male and female students face many difficulties due to the adoption of English Language as the medium of subjects they are studying in their faculties. Nevertheless, analyzing their academic performances, it is significant the fact that the female students demonstrate better academic performances than male students. Being aware of the fact, hypnotising their gender has an impact learning the English Language, a survey was done taking 104 students (52 females and 52 males) from the faculty of management at the University of Ruhuna. In order to accumulate the necessary data both quantitative and qualitative methods were used. A test paper was given to the students and the test paper included vocabulary, grammar, sentence structures and reading comprehension. To ensure the effectiveness of the test, the paper was checked by several experienced English Instructors. Several students were randomly selected and interviewed to check their speaking abilities. As far as speaking skill is concerned, both female and male students seemed to be excited and they were ensured to have a casual chat about their everyday life by the interviewer (the researcher). Marking the papers gave the evidence that the girls achieved significantly better than boys, supporting the fact that the girls are more open to new forms of a new language. When speaking as well the girls showed better fluency than boys. Gathering more information on the subject, some other articles, journals and research papers which had been done on the same topic were read. More importantly, it is found that there is not a direct connection between gender and learning English language but it depends on the motivation, commitment, enthusiasm and social background they are living in which is different from the hypothesis. Moreover it is noticed that the girls' interaction is higher than boys in the class and in the society. Thus the reason behind why girls are more motivated than boys is that the girls' attitudes learning English, is very positive. Nevertheless, the previous researchers present that the results of doing such investigations are still controversial and what makes better learners is not the gender but the effective education. Therefore, the study concludes outlining some implications for the educational policy makers.

Key words; Impact, Gender, Second Language, Language learning

**The impact of the qualities of the creative communication used in the advertisements for acknowledging the society regarding the environmental issues
(An analysis conducted based on 8 advertisements in print media in advertising agencies in a few countries selected for acknowledging the society regarding the destruction of animals)**

Dineesha Liyanage

In the current world, advertisements are one of the main strategies of propaganda used in marketing. Even though the main purpose of advertisements is marketing, when we pay attention to the advertisements in the modern world, it is significant that they are very high in creativity. It could be identified that when communicating the environmental issues, advertisements are acting as educational notices. These advertisements which educate the society can be perceived as an instance where advertisements are working in terms of instilling good values in society apart from marketing.

In this study, the main objective is to outline the nature of the qualities of the creative communication used in the advertisements in the communication of environmental issues. In this regard, Research problem of this study is to focus only on the impact of the qualities of creative communication in advertisements regarding the acknowledgement of the society on the destruction of animals.

The main method of this study is content analysis. Content analysis of this research was conducted based on 3 printed advertisements produced by “Scollz & Friend” advertising agency situated in Berlin in Germany, 3 printed advertisements produced by “Ogilvy” advertising agency in China and 2 printed advertisements produced by “Stick” advertising agency in South Africa. In addition, gathering information was done based on a questionnaire with the participation of 50 data contributors for the sample method. The main conclusion of the study was that there is a huge impact of the qualities of the creative communication used in the advertisements in educating the society on the environmental issues.

Key words – environmental issues, advertisements, creative communication, impact

The importance of context sensitivity of Basic Interpersonal Communication Skills (BICS) in Content and Language Integrated Learning (CLIL) in Bilingual Education.

Marie Perera.¹ S.A.Kularathne²

National Education Commission proposed Bilingual Education to the national curriculum in 2003. One of the main objectives of this introduction is to improve the second Language proficiency of learners. The Ministry of Education in collaboration with the National Institute of Education is designing a model based on CLIL; a widely used learning teaching approach in bilingual education, to suit the Sri Lankan context. Cummins (1981) claims two language proficiencies that are necessary in improving the bilingual learner's second language proficiency; BICS (Basic Interpersonal Communication Skills) and Cognitive Academic Language Proficiency (CALP). BICS is an informal day today language that learners acquire when exposed to an acquisition rich environment while CALP refers to the use of academic language in formal learning teaching contexts. Cummins claim that BICS lays the foundation for CALP. The objective of this paper is to examine Cummins' BICS in relation to Bilingual Education in Sri Lankan context. This analysis is based on interviews held with a purposive sample of bilingual teachers and teachers of English and observation of classrooms and content analysis of pupils textbooks. Literature relating to CLIL too was studied. Cummins' interpretation of BICS has to be modified if it is to be applied to Sri Lanka. Opportunities for the pupils to acquire BICS are not adequately available in Sri Lanka as the teachers are not well equipped with learning teaching strategies facilitating BICS .Therefore BICS should be facilitated in the formal classroom context. Text books prescribed to teach bilingually are the direct translation of monolingual textbooks designed for monolingual learners .It is recommended that teachers be trained in CLIL pedagogy and textbooks be revised. Teachers should be equipped with knowledge and skills to adapt available textbooks to facilitate BICS.

Key words: Basic Interpersonal Communication Skills (BICS) Cognitive Academic Language Proficiency (CALP) Content and Language Integrated Learning (CLIL) Reference:

The influence of English usage for creation of new Sinhalese words

K.B. Jayawardhane¹, Ven.U.Rewatha²

There are ten major language families that have strong interdependence relationship of each other. Sinhala is our mother tongue and the second language is English. The influence of classical languages such as Sanskrit, Pali on Sinhala plays vital roles to generate new vocabulary. There are three main streams of word categorization due to influence of other languages such as Sanskrit, Pali and Tamil on Sinhala as Tatsama, Tadbhava and niṣpanna. Many researches have been conducted with respect to those languages except English. Numerous words and usages that have been extracted from English can be seen in our mother tongue. But those new trends (propensities) are not studied on the basis of ancient philological methods mentioned in Sanskrit grammar compilations. Generally people who are not fluent in English pronounce words in identical way. But the pronunciation of those words is critically reviled. For instance, the word of Aunt is pronounced as "*enty*" or "*ānty*". These kinds of words are considered as wrong but the pronunciation of those words is accurate because these are tadbhava words and cannot be accepted as original English words. In this paper attempt will be taken to categorize and introduce this kind of new words that should be added to Sinhalese vocabulary.

Key words: Niṣpanna, Sanskrit Grammar, Tatsama, Tadbhava, Translate

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The Influence of Writing Skills on Spoken Skills of Undergraduates: A Study on the Improvement of Oral Fluency of Engineering Students

S. P. Hewa¹ and G.J.S. Wijesekara²

In seeking employment, undergraduates with better speaking skills in English with average academic performance tend to get an edge over their colleagues with comparatively lower communication skills despite their excellent academic qualifications. Opportunities that can be made available to undergraduates to speak during class hours are hardly enough to bring about any tangible result. The purpose of the present research was to study the role of writing activities in the development of oral fluency of undergraduates who learn English as a second language. In this study, it is assumed that there is a correlation between speech and writing and thus writing can help stimulate the cognitive mechanisms relating to speech production, which would lead to the improvement of oral fluency.

The study was conducted with two groups of students. All the participants were taught for fourteen weeks where the control group was made to do only the lessons common to both groups. Conversely, in addition to the lessons common to both groups, the experimental group was made to do the specially designed writing activities which were intended to improve their fluency. The recorded conversations of the participants were analyzed for their fluency according to Fillmore's definition of fluency. Speed of delivery, frequency of voiced fillers and silent pauses were taken into account when analyzing the data.

The two groups were statistically compared for their achievement in fluency using statistical package of SPSS (Version 16). The results showed that there was a significant improvement in the fluency of the students of the experimental group, especially of the weaker ones, which could not be found in the students of the control group. Thus the study supported the view that special writing activities could be used for improving the fluency of adult Second Language learners of English.

Key words: English as a Second language, Fluency, Writing, Cognitive, Correlation, Fillmore

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The Pioneer revelation of Mudliyar W. F. Gunawardhana about the grammatical rules and strategies of Sinhala language

S. R. Lasika¹

Mudliyar W. F. Gunawardhana was a renowned scholar who plays a prominent role in uplifting the sphere of language studies in the beginning of the 20th century. It was a period which marked the lack of qualified scholars who were engaged in the field of classical Sinhala grammar. Mudliyar W. F. Gunawardhana's contribution is remarkable because he was a pioneer in revealing the strategies and rules of the classical Sinhala grammar. The standard acceptance is that honour should be given to Munidasa Kumarathunga as the frontier who revealed the above mentioned grammatical rules. Yet through his work which comprises editions of classical grammar Mudliyar W. F. Gunawardhana revealed very interesting concepts before the emergence of Munidasa Kumarathunga. In this study an attempt has been to analyse theories forwarded by Mudliyar W. F. Gunawardhana on the classical Sinhala grammar. Literature related to the subject area of Sinhala grammar written by Mudliyar W. F. Gunawardhana and Munidasa Kumarathunga.

Key Words - Mudliyar W. F. Gunawardhana, Munidasa Kumarathunga, Classical Sinhala grammar, Grammatical rules, Strategies

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The Practical Values of Vāstu Techniques as depicted in Sanskrit Vāstu Texts

Ven.U.Rewatha¹

Techniques on Vāstu have been analyzed in different type of Sanskrit Texts compiled by great sages not only in India but also in Sri Lanka. All the techniques introduced by them are based on five major faculties as The Earth, Water, Fire, Wind and Space. Prominent Sages imposed techniques taking into account of interdependence coherent of those faculties. It is obvious that almost whole the techniques on Vāstu as depicted in Sanskrit texts have scientific value. Those techniques have been practiced by architects in Sri Lanka in different stages of house planning. But Architects who are said to be conversant of this subject do not scrutinize the practical and scientific background of the techniques. Many of them do not have adequate understanding of primary sources that are out rightly composed in Sanskrit. Accordingly, ambiguous opinions are promulgated. Usually, architects who check the defects of plans practice the conventional knowledge that also has been descended through the Sanskrit sources. It is especially to be noted that architects who maintain the traditional knowledge do not prefer to change or update their attitudes and theories. So that people have to face many difficulties from stem to stern of construction process. This research will be discovered the foremost practical value of Vāstu techniques that definitely will be benefitted both hereditary and modern architects.

Key words: Architecture, Sanskrit, Scientific value, Technique, Vāstu,

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The Rape, the Reason, the Response: A Critique of the Representation of Rape

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This paper is an attempt to critically analyze the cultural and gendered discourses that underlie the representation of sexual violence against women in Sri Lanka. While gender-based sexual violence takes many forms, this paper specifically focuses on rape, given the growing number of incidents and increased media and public attention towards rape in the recent past. The analysis focuses on the rape and murder of an eighteen-year-old school-girl in Jaffna, in the light of the unprecedented attention the incident received from media as well as the public. As in the rape and fatally wounding of a young woman on a moving bus in Delhi more than two years ago, this brutal crime shocked the entire nation and sparked an unforeseen response from ordinary citizens from all walks of life. Media representations of the incident ranged from informative reports to opinion articles that shed light on the contemporary discourse on rape and the ideologies and dominant narratives that underpin its narrative. An analysis of a number of online articles on the incident (expert opinions, features, interviews, factual accounts)utilizing the theoretical frameworks of discourse and performativity of gender offered by Michel Foucault and Judith Butler respectively, indicates that cultural and gendered scripts of patriarchy has played a significant role in the articulation of Vithya's rape through various media outlets. Enmeshed within the patriarchal discourse of rape and mediated through the lens of gender, culture, race, and politics, the representations of the rape and murder of Vithaya Sivaloganathan fail to see rape as structural symptom of gender inequality in patriarchal traditions that celebrate male sexual conquest and entitle men to control women's bodies. Instead, the focus is on the racially, culturally and politically mediated apologetics of rape that appeal to an essentialist conceptualization of the male and female, erosion of culture and post-war social mutation. Although the incident pushed the boundaries of existing discourse and effected transformations in terms of response, bound by language and dominant narratives of race and power, sexual violence against women and girls become yet another foot soldier in the national struggle for political rights.

Key words: rape, sexual violence, representation, discourse, gender

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The Significance of Animal Metaphors: Émile Zola's *Thérèse Raquin* and Patrick Suskind's *Perfume: The story of a murderer*.

Dinushika S. B Ranasinghe¹

In philosophy, the concept of animalism is about personal identity which explains that humans are animals by nature as they succumb to their instincts. This research aims to present the significance of animal metaphors depicted in 19th century French literature and in 20th century German literature by examining the protagonists: Thérèse in the French novel of Émile Zola's *Thérèse Raquin* (1867) and Grenouille of John E Woods's English translation of the German novel *Perfume: The story of a murderer* (1985) by Patrick Suskind. This paper argues whether Thérèse and Grenouille are presented as animals. It explores whether animal metaphors that are associated with the protagonists by the two authors depict a lack of spirituality and intellectuality. Specifically, by comparing the animalistic traits such as the internal instincts of lust, violence and aggression of the protagonists. A qualitative analysis of data is done by using comparative methodology. This study compares the protagonists of Zola's and Suskind's novels to animals. In the preface to the second edition of *Thérèse Raquin* Zola states that his characters are human animals dominated by their instincts as they are steered into every action of their lives involuntarily. In *Perfume*, Suskind introduces Grenouille as "a strange, cold creature" and "a hostile animal", as the narrator questions "were he not a man by nature prudent" (p. 17). The key finding of this research reveals that the animal metaphors are used by Zola and Suskind to signify the moral degradation of the protagonists.

Key words: animal metaphors, comparative literature, Suskind, Zola.

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The strategies used by the translators to depict the French cultural aspects into Sinhala

E.M.V.R.S Ekanayake¹

A variety of languages with different cultures has created a great demand for the translation in the current diversified society. Translation, according to Marianne Lederer, is a process of reading, understanding of a source language text and rewriting it in a target language. We create a similar situation in foreign language. Therefore, the translation plays an important role on crossing through different cultures and communication. Thus, the translators are always in the risk of finding the terms for their translations as they have to fully comprehend the idea and the environment of the source text. There are idioms, colloquial terms, borrowings, special terminologies in the domain and cultural expressions which make the task of a translator more complicate.

This paper provides an insight to the strategies used by the Sinhala translators, who translate directly from French, to portray the source French culture in Sinhala. Encompassing the theory of *source oriented or target oriented* by Jean-Rene Ladmiral, it explicates the methods of two Sinhala translators who have translated the novel : *L'etranger* by a great French novelist Albert Camus. To be more specific on the methodology, which is a descriptive analysis, the author depicts how these translators have presented the French cultural aspects which include the behavior, courtship, morals, customs, clothing, institutions, and beliefs etc. in their Sinhala translation.

Having acknowledged the content of the translations, and vividly analyzing the strategies, it is evident that each translator has his own method of presenting the cultural aspects. One can use transcoding process not only focusing on the language but also on the cultural transposition. Thus, he can either contemplate on the reader of the target text or source text. Moreover, he can develop his own adaptation.

Key words: culture, French, strategies, Sinhala, translation

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The force behind the translation of pali Milindapanho into Sinhala

M.B.B. Jayasundara¹

“Milindapanho” is a remarkable Pali text which depicts the religious discourse between the Greco – Indian king Minander (Milindu) who ruled the north western region of India in the 2nd century B.C. and Arhath Nagasena thero. This book was translated into Sinhala as “Sri Saddharmadasa” by Heenatikumbure Sumangala thero, a disciple who represent the school of the venerable Veliwita Saranankara who was invited for this literary task by the Kandyan king Keerthi Sri Rajasinghe (1747 – 1781 A.D.). Sinhala literature is enriched with many scholarly works from Anuradhapura to mediaval period which were based on Pali and Sanskrit sources and they can be interpreted as translations and adaptations of the original source. Yet, a scholarly work which is created on the foundation of logic was not apparent until the emergence of Milinda Prashnaya in the Kandyan era. This Pali text which was in usage from Anuradhapura period was not translated during the literary period of Kurunegala. Kurunegala is generally accepted as the period which the culmination of translation work occurred. But Pali Milindapanho was not translated into Sinhala during that era which gives prominence to translator works. It was translated during the Kandyan period, centuries later and there should be a special reason or agent behind this phenomenon. Kandyan era portrays the deterioration of economic, political and cultural spheres. Scholars believe Milindapanho was introduced into Sinhala literary field as a result of the challenge of Christianity towards Buddhism. This research work of ours which was done by using historical and literary sources of the Kandyan period reveals the above mentioned intention was not the only cause for this translation. One intention was to provide a religious text which could be prescribed to contemporary students who lived in a period which marked the deterioration of “Dharma” and “Vinaya”. The other intention was to attract the attention of ruling king of that period, Keerthi Sri Rajasinghe, who was a descendant of the Nayakkar clan. It was feared that the king would turned in to a heretic under the influence of superstitious belief system of the era. Accordingly Sinhala Milinda Prashnaya was a scholarly religious work which was produced to fulfill the needs of Kandyan era.

Key words: Milindapanho, Literature, Minander, Nagasena

1

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The use of Upamā as a partial theory of knowledge in early Buddhism

Ven.Dapane Chandaratana¹

The etymological combination of prefix 'upa' and root 'ma' makes the origination of words upama and upamana which means simile, comparison, analogy etc. The Pali English dictionary composed by T.W Rhys Davids and William Stede has translated the word upama as likeness, simile, parable and example. The upamana is translated as comparison. Rupasiddhi mentioned that upamana means resemblance (sādissē upamanā upama). Thus comparison of object or a thing to another object or thing is generally known as upama or upamana. It is true to say, upamana helps us to realize, a thing that is difficult to be realized only by mere explanation. That is why many philosophers have used similes to explain their philosophical matters. Nyaya, Vedanta and Mimamsa schools of philosophy have accepted upamana as an independent theory of knowledge.

Tarkasangraha dipika explains that upamana is something that which causes to gain resemblance knowledge (Upamiti Karanamupamānam). Ven. Dinnaga mentioned in Nyayavartika that upamana is included in perception. Vaisesika showed that upamana contains in Anumana. Thus different philosophers have different notions regarding acceptance of upamana as theory of knowledge. Early Buddhism has employed upamana (comparison) to make clear the sense (upamā.....kata atthassa viññapanāya - M.I.185) and Buddhism emphasizes that some intelligent people understand the meaning of what is said by means of a simile (upamāya pi idha ekacce viññu purisā bhāsītassa attam jananti- A IV 163) But there is no evidence to prove that whether Buddha has accepted or rejected upamana as direct personal theory of knowledge. Nevertheless Buddha has employed so many times upamana as the way of explaining his deep philosophical matters. For example in Suttanipata the Buddha compares the extinction of Enlighten One to going out of fire of oil lamp (Nibbanti dhira yatayam padipo) Nibbana is above of our general knowledge. It cannot be understood without attaining it, But above example helps to get understanding, at least the nature of one who attains to Nibbana, In this context upamana conduces to get partial knowledge about the nature of Enlighten One .

In Dhammapada Buddha used upama as the method of understanding the criteria of the good and bad. Here the Buddha said “all the beings fear punishment and death, therefore having compared oneself, one should refrain from doing bad actions” (attānam upamam katva nahaneyya naghataye). This is one of clear examples that Buddha has used upama as theory of knowledge. Generally it is accepted that there are only two types of theories of knowledge in Buddhism as perception (pratyaksha) and inference (anumana). But considering all factors my suggestion here is that early Buddhism employed upamana (comparison) as a partial theory of knowledge.

Key words- Upamana, Theory of knowledge, partial knowledge

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Understanding and Appreciation of Poetry in the light of Eco-Criticism

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During the second half of the 20th century to be precise the last forty to fifty years the study of literature has metamorphosed strikingly due to the magnetism of such miscellaneous critical techniques to texts as structuralism, post structuralism, Modernism and post Modernism, New historicism, Deconstruction, the subaltern studies, Feminism, Magical Realism and post colonial theory in to this diverse blend of approaches should be computed the Newly emanated field of eco – criticism. It can be interpreted as the study of relationship that prevails between literature and nature. The issues of power, authority, ideology, consumerism, capitalism and its consequences for ex: modernism and globalization play prominent and vital roles. In determining the discourse of Eco- criticism.

Re- reading the poetic- texts of major Sinhala romantic poets who represent the second phase of Colombo poetic era and the modern poets like Ariyawansa Ranaweera in the light of eco criticism provide rare insights in to the complexities of the natural world and the human world. Further it provides an understanding of subtle interaction of the above mentioned dual words. The poems which belong to "Chayawaad" period of Hindi literature the classical Chinese poetry and the romantic poetry tradition of the west too succeeds in connecting cultural encounters to the realms of nature through the imagination of the poetic vision.

An attempt has made in this study to analyze the style, techniques, vision and the underlying message of the above mentioned literary traditions. Also special attention was paid to examine the perspectives of the eco- criticism and how it has encouraged has encouraged the connoisseur to reimagining the relationship pursued by various poets in representing the interaction of the humans and the nature.

Key words: Nature and literature, Eco- criticism, Romantic poetry, "Chayawaad" period, classical Chinese poetry

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මධ්‍යකාලීන හින්දී කවි කබීර්දාස් සහ යථාර්ථවාදය

එල්. එම්. රිඳ්මා නිශාදීනී ලංසකාර¹

හින්දී සාහිත්‍ය ඉතිහාසයේ ප්‍රථමවරට පිහිත පංතිය වෙනුවෙන් තම හඬ අවදිකොට එකල භාරතීය සමාජයේ වැඩවසම් ක්‍රමයට දැඩිව පහර ගැසූ මධ්‍යකාලීන හින්දී කවියෙකි කබීර්දාස්. නිර්ගුණ භක්ති සම්ප්‍රදාය නියෝජනය කරනු ලබන ප්‍රකට මෙන්ම දක්ෂ කවියෙකු ලෙසට මොහු හඳුන්වාදීම, හින්දී සාහිත්‍යයේ සම්ප්‍රදායකි. කබීර්දාස් තම මුල්කාලීන නිර්මාණ හරහා නිර්ගුණ භක්ති සම්ප්‍රදාය ආධාර කොට ගනිමින් දේව භක්තිය පිළිබඳ තම අදහස් ප්‍රකාශ කළ බව සත්‍යයකි. එනමුත් එයම හේතුවක් කොට ගෙන ඔහුගේ අන්‍යන්‍යතාව නිර්ගුණ භක්ති සම්ප්‍රදාය හා අවියෝජනීයව දැකීම සාධාරණ නොවේ. ඒ මක්නිසාද යත් ඔහු පසුකාලීනව තම කවිය ඔස්සේ එවකට භාරතීය සමාජයේ විරාජමාන උසස් යැයි සම්මත පැලැන්තියට විරුද්ධව සාමාන්‍ය දිළිඳු ජනතාව හා අත්වැල් බැඳගත් උදාර සමාජවාදියෙකු වූ බැවිනි. හින්දී සාහිත්‍යයේ නිර්ගුණ භක්ති සම්ප්‍රදායේ දේව භක්තිය ප්‍රකාශ කරන්නාවූ කවියෙකු ලෙසට ප්‍රකට මෙවැනි වූ යථාර්ථවාදී කවියෙකුගේ සැබෑ අන්‍යතාව විශ්ලේෂණාත්මකව හඳුනාගැනීම මාගේ අධ්‍යයනයේ ප්‍රධාන අරමුණ වේ. තවද මධ්‍යකාලීන භාරතයේ භක්ති ආන්දෝලනයට කබීර්දාස් කවියාගෙන් ලැබුණු දායකත්වය සහ විශ්‍යවිචාරය අතහැර යථාර්ථවාදය වැළඳ ගැනීමට ඔහුට පාදක වූ සමාජ පසුබිම හඳුනා ගැනීම ද මෙම අධ්‍යයනයෙන් අපේක්ෂා කෙරේ. මෙය මූලාශ්‍ර අධ්‍යයනයක් වන අතර ඒ සඳහා ප්‍රාථමික සහ ද්විතීයික මූලාශ්‍රය භාවිත කරනු ලැබ ඇත. යථාර්ථවාදය පිළිබඳ සාකච්ඡා කළ කාර්ල් මාර්ක්ස්ටත් පෙර, මාර්ක්ස් විසින් හඳුන්වා දෙන ලද යථාර්ථවාදයේ පදනම වන ද්විසංකාතමක භෞතිකවාදය, කබීර්දාස් කවියා එකල තම පද්‍ය නිර්මාණ ඔස්සේ ලොවට හෙළිකොට ඇති බව ඔහුගේ නිර්මාණ පරිශීලනයේදී මට පසක් වූ වැදගත් කරුණයි. ජර්මානු විද්වතුන් දෙදෙනෙකු වන හේගල් සහ ෆයරබාන් විසින් ඉදිරිපත් කරන ලද සිද්ධාන්ත වන 'ද්විසංකාතමක පද්ධතිය' සහ 'භෞතිකවාදය' ගුරු කොට ගනිමින් පසුකාලීනව විද්‍යාත්මක පසුබිමක පිහිටා මාර්ක්ස්, යථාර්ථවාදයේ පදනම ලෙසට ද්විසංකාතමක භෞතිකවාදය නමැති සිද්ධාන්තය ඉදිරිපත් කොට ඇත. නමුත් මාර්ක්ස්, හේගල් සහ ෆයරබාන් යන තිදෙනාටම ප්‍රථම කබීර්දාස් තම නිර්මාණ හරහා යථාර්ථවාදය ලොවට ඉදිරිපත් කොට ඇත. වෙනස, එය 'කබීර්දාස්වාදය' ලෙසට ලෝකයා අතර ප්‍රචලිත නොවීමයි.

ප්‍රමුඛ පද:- මධ්‍යකාලීන හින්දී කවි, නිර්ගුණ භක්ති සම්ප්‍රදාය, විශ්‍යවිචාරය, යථාර්ථවාදය, ද්විසංකාතමක භෞතිකවාදය

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Using Windows Speech Recognition Tool to Improve English Speaking Skills of Undergraduates Learning English as a Second Language

W.G.J. Lakshani

Undergraduates who pursue their main stream studies in English find the ability to express themselves in English imperative not only for day-to-day communication in the academic setting but also as a prerequisite skill as future professionals. However, many students complain of being extremely nervous and apprehensive when assigned speaking tasks and consequently switching back to express themselves in the first language.

The key objective of this empirical research is to test the usability of Windows Speech Recognition Tool as a resource to improve English speaking skills of undergraduates in an ESL context. The Windows Speech Recognition Tool is a program originally designed by Microsoft to command personal computers with the users' voice and to dictate voice to word documents. It was hypothesized that the practice gained by learners when interacting with the computer in English speaking tasks would pave the way to communicate with peers and mentors in English more confidently.

A sample of 30 undergraduates who had scored comparatively low marks for the speech component in an English language test was selected. An induction was given to the students about the use of the speech recognition tool, for instance, the correct use of microphone and the need to pronounce words correctly in order to be recognized by the tool, etc. Subsequently, each student was assigned an array of tasks to be completed at their own pace. These assignments consist of activities that require the use of speech recognition tool in order to comment on videos, describe given pictures, and to give instructions to carry out medical tests, etc. The scripts of the speech that the students produce are recorded by the tool and the students are given feedback for improvement accordingly. The students face a speech evaluation test conducted by the mentor at the end of the course. These marks will be comparatively analyzed using the t-test strategy with the marks of the pre-test.

Key words: Windows Speech Recognition, English speaking skills, ESL

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Visual clutter caused by the outdoor advertising in the sub-urban areas of Sri Lanka.

Asitha Amarakoon.

With the Expansion of digital technology and low cost printing methods, outdoor advertising in the sub-urban areas of Sri Lanka was greatly propagated throughout the last decade and has become a major cause of the visual clutter. In the Sri Lankan context the visual clutter as a whole is not the only factor that causes an eyesore. The fact that they are designed poorly; with excessive and inappropriate use of colours, typefaces and other visual elements, violating the concepts of visual aesthetics, remains a distinctively negative characteristic of the outdoor advertising in the sub-urban areas. In this study, a questionnaire was designed with the concern of obtaining data about the knowledge of graphic design, theories, technical skills & practical application, inspirations, communicative skills, etc., to understand the potential of the people who are responsible for creating these visuals and their processes. Approximately about fifty questionnaires were collected from young people who are working as graphic designers in small-scale advertising companies, in the areas of Gampaha, Minuwangoda, Divulapitiya, and Kelaniya. The results suggests that the poor quality of the visuals in question is affected not only by the lack of proper conceptualizing and extremely limited time spent on the creative process but also by the lack of proper knowledge and skills in graphic design of the people who have worked on such outdoor advertising, thus aggravating the visual clutter.

Key words: Visual Clutter, Graphic design, Visual Arts, Outdoor Advertising

ආදි බුදුදහමේ විඤ්ඤාණ සංකල්පය හා යෝගාවාර විඤ්ඤාණමාත්‍රතාව අතර තුලනාත්මක අධ්‍යයනයක්

පූජ්‍ය කරපික්කඩ සෝභිත¹

ආදි බුදුසමය පිළිබඳ විමර්ශනාත්මකව අධ්‍යයනය කිරීමේ දී බුදුරජාණන් වහන්සේ තමන් වහන්සේගේ ධර්මය පර්යාය වශයෙන් දේශනා කොට ඇති ආකාරය දක්නට ඇත. “විඤ්ඤාණය” පිළිබඳ මුල් බුදු සමයාගත ඉගැන්වීම් ද මෙම පර්යාය ලක්ෂණය මත සිදු වේ. “විඤ්ඤාණය” යන්නට පර්යායව පද දෙකක් මුල් බුදුසමය තුළ හමු වේ. එනම්, “වික්ත, මනෝ” යන්න යි. මෙහි දී සත්ත්වයාගේ ඒකායන අභිප්‍රාය වන විමුක්ති සාධනය උදෙසා විඤ්ඤාණයේ ක්‍රියාකාරිත්වයට මුල් බුදුසමයේ දී හිමිවන්නේ ප්‍රමුඛ අවස්ථාවකි. විමුක්තිය හෝ සාංසාරිකත්වය විඤ්ඤාණයේ ක්‍රියාකාරිත්වය මත රඳා පවතින බව මුල් බුදුසමයේ බොහෝ සූත්‍ර දේශනාවල දැක්වේ. එය පිරිසිදු භාවයට පත් කළේ ආශ්‍රව්‍යය ඥානය වෙත පුද්ගලයා යොමු කිරීමෙන් සියලු ආශ්‍රවයන්ගෙන් මිදී විමුක්තිය ලබා ගත හැකි බව බෞද්ධ ආකල්පයයි. බුද්ධ පරිනිර්වාණයෙන් අනතුරුව ධර්මය සහ විනය පිළිබඳව ඇති වූ නොයෙක් මතවාද පදනම් කොටගෙන පසුකාලීනව සංඝ සමාජය හීනයාන, මහායාන, තන්ත්‍රයාන ආදී වූ නිකායයන්ට බෙදී ගිය අතර, මෙයින් ධර්මය විවිධාකාරයෙන් විග්‍රහ කිරීමටත්, විස්තර අටුවා සැපයීමටත් පසුකාලීන බෞද්ධ ආචාර්යවරු යොමු වූහ. මෙහි දී මහායානික ආචාර්යවරු උක්ත කාර්යය විෂයෙහි සුවිශේෂී දායකත්වයක් සපයා ඇත. මුල් බුදුසමයේ ආභාසය ලැබූ ඔවුහු එහි සාරය ගෙන, මූලික ධර්ම කරුණු නොයෙකුත් අයුරින් අර්ථ දැක්වූහ. එයින් නිර්මාණය වූ බෞද්ධ දාර්ශනික සම්ප්‍රදායයන් අතර යෝගාවාර විඤ්ඤාණවාදී දර්ශනය ප්‍රමුඛ වූවකි. මෙම යෝගාවාර සම්ප්‍රදායේ මූලික ඉගැන්වීම වනුයේ විඤ්ඤාණමාත්‍රතාවයි. එනම් ලෝකය තුළ දක්නට ලැබෙන සියලු ධර්ම යථාර්ථවාදීව සිතිවිලි මාත්‍රයක් පමණක් බව දැක්වීමයි. මෙම ඉගැන්වීම සඳහා ඔවුන් මූල බීජ සපයනු ලබන්නේ මූලික සූත්‍රාගත දේශනාවන් තුළ ඇති විඤ්ඤාණ පිළිබඳ අදහස තුළිනි. ම.නි. මධුපිණ්ඩික සූත්‍රය තුළ පුද්ගලයා ඉන්ද්‍රිය සන්නිකර්ෂණය ලබා ගැනීම පිළිබඳ පුළුල් වූ විග්‍රහයක් දක්නට ඇත. එම දේශනාව අනුව ඉන්ද්‍රිය ප්‍රත්‍යක්ෂ ක්‍රියාවලියේ අවසානය ලෙස දැක්වෙනුයේ ප්‍රපඤ්චකරණය නම් වූ මානසික තත්ත්වයකි. එනම් මනස තුළ වැරදි වූ ආකල්පය මවාගැනීමයි. මෙය යෝගාවාර සම්ප්‍රදායේ එන විඤ්ඤාණමාත්‍රතාවට සමාන වූ ඉගැන්වීමකි. මෙම අධ්‍යයනය තුළින් යෝගාවාර විඤ්ඤාණමාත්‍රතා සංකල්පය යනු, ආදි බෞද්ධ දර්ශනයෙහිම සංවර්ධනයක් බව පෙන්වා දිය හැකිය.

ප්‍රමුඛ පද: විඤ්ඤාණය, විඤ්ඤාණමාත්‍රතාව, ප්‍රපඤ්චකරණය, මනස.

¹ පාලි හා බෞද්ධ අද්ධ්‍යයනාංශය, මානව ශාස්ත්‍රපීඨය, කැලණිය විශ්වවිද්‍යාලය, ශ්‍රී ලංකාව.

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අනුරාධපුර යුගයේ කාන්තාවට හිමිවී තිබූ සමාජ තත්වය පිළිබඳ අධ්‍යයනයක් (සීගිරි ගී ඇසුරින් කෙරෙන විමර්ශනයකි)

එච් ඒ දිලුම් රත්නමාලා

අනුරාධපුර යුගයට අයත්, විද්‍යාමානව පවතින, අල්පතර සාහිත්‍ය කෘති අතර සීගිරි ගීවලට හිමිවනුයේ වැදගත් ස්ථානයකි. මේ ගී ක්‍රි.ව. 8, 9 සහ 10 වැනි සියවස්වල දී සීගිරිය නැරඹීමට ගිය රසකාමීන් අතින් ලියවී ඇත. ලංකාවේ නන් දෙසින් පැමිණි භික්ෂූන් , රජවරුන් , කුමාරවරුන් , ඇපාවරුන්, ලිපිකරුවන්, ලේඛකාධිකාරීන් , ගුරුවරුන් , කවීන්, වෙළෙඳුන් , වෙදුන් , රාජ සේවකයන් , ගම්පතීන් , වෙනත් ප්‍රභූන් , පිරිවෙන් හා විහාරවාසීන් , පිරිවෙන් කරවූවන් සහ උසස් කාන්තාවන් සීගිරි කවීන් අතර සිටින බව මහාවාර්ය සුවරිත ගම්ලත් සම්භාව්‍ය සිංහල කාව්‍යයේ විකාසනය නම් ග්‍රන්ථයෙහි සඳහන් කර ඇත. මෙම පර්යේෂණයේ අරමුණ වන්නේ සීගිරි ගී රචිත, අනුරාධපුර පශ්චාත්කාලීන අවධිය වන විට කාන්තාවට හිමිවී තිබූ සමාජ තත්වය කවරාකාරද යන්න සම්බන්ධයෙන් විමර්ශනයක නියැලීමයි. ස්ත්‍රී සාක්ෂරතාව , කාන්තා සේවා නියුක්තිය , විවාහයේ දී ස්ත්‍රීයට හිමිව තිබූ තත්වය මෙන් ම ස්ත්‍රීයක , බිරිඳක හා වැන්දඹුවක වශයෙන් ස්ත්‍රීය කේන්ද්‍ර කරගත් සමාජ සම්මත පිළිබඳ සීගිරි ගීවලින් අනාවරණය වන තොරතුරු ආශ්‍රයෙන් පර්යේෂණ ගැටලුවට අදාළ දත්ත ඒකරාශී කරනු ලැබේ. මෙම යුගයේදී ස්ත්‍රී සාක්ෂරතාව ඉහළ මට්ටමක පැවතී බවට සාධක සීගිරි ගී අතර වෙයි. එමෙන් ම කාන්තා සේවා නියුක්තිය පිළිබඳ සැලකීමේ දී රාජ්‍ය සේවයෙහි නියැළුණු ස්ත්‍රීන් පිළිබඳ තොරතුරු අනාවරණය කරගත හැකිය. තවද විවහයේදී ස්ත්‍රීයගේ අභිමතයට ගරු කිරීම මෙන් ම බිරිඳට මුල්තැන හිමිවූ බිත්ත විවාහ ක්‍රමය පිළිබඳ සඳහන්ව තිබීම සහ පරිවාර සේවකයන් තබාගෙන සුබෝපභෝගී ජීවිත ගතකළ ස්ත්‍රීන් සම්බන්ධයෙන් ලියවුණු ගී ද මේ ගී අතර ශේෂෝපගතව පවතී. එමෙන් ම මෙකී යුගයේ දී ස්ත්‍රී සම්බන්ධයෙන් බලපැවැත්වුණු යම් යම් සමාජ සම්මත පැවතී බව සීගිරි ගී වැඩිදුරටත් අනාවරණය කරයි. ඒ අනුව ස්ත්‍රීයක, බිරිඳක සහ වැන්දඹුවක ලෙස ඇගේ හැසිරීම නිශ්චිත සම්මතයන්ට අනුරූප ව තීරණය වී තිබුණි. මෙම කරුණු සලකාබලන විට තත් යුගය වන විට ස්ත්‍රීයට සමාජයෙහි මනා පිළිගැනීමක් , නිදහසක් සහ ස්වාධීනත්වයක් හිමිවී තිබූ බව නිගමනය කළ හැකිය.

ප්‍රමුඛ පද - අනුරාධපුර යුගය , සීගිරි ගී , කාන්තාව , සමාජ තත්වය , ස්ත්‍රීය

MEDICAL FACULTY

A pilot study on virtual patients: Understanding student experiences to facilitate learning

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Virtual patients are web-based interactive clinical scenarios and are being increasingly used globally in undergraduate medical training. Despite its value, virtual patients are not been used widely in the local context. Therefore this pilot study examined student experiences of using a virtual patient with the aim of identifying student acceptance and the possibility of integration into the medical curriculum to enhance student learning.

A virtual patient having a linear navigation design was developed in the virtual learning environment (VLE) of the faculty paying meticulous attention to instructional designing, medical education principles and content coverage. 12 immediate graduates of the faculty were recruited to the study following informed consent as they have completed the undergraduate curriculum and in a position to provide meaningful comments on the activity concerned. They were given online access to the virtual patient and were requested to complete the case study followed by an 18 item survey designed on the same platform. The results were analysed using MS Excel.

All study participants unanimously agreed to the usefulness of virtual patients for medical undergraduate training. It was identified as a means to practice clinical cases, preparation for clinical training in the ward setting, a guide for assessments, to understand practical aspects of patient management and a means to refresh the knowledge. The most useful features were the multiple choice questions integrated to the case study, immediate feedback and learning points. The essay type questions which require text input were discouraged. It was suggested to impose a time limitation as it mimics the reality and to include more practical aspects.

The positive student experiences associated with the interaction of the virtual patient during this study highlighted the need for such innovative methods to facilitate medical undergraduate learning. However, a larger study needs to be conducted on different virtual patient designs before adopting them for student learning.

Key words: Virtual patients, Web based interactive clinical scenarios, Virtual patient design

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Assessment of Nutritional Status of Adolescents in Kandy district- Sri Lanka

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The term adolescence is commonly used to describe the transition stage between childhood and adulthood. Although 21% of the population of Sri Lanka consists of adolescents, studies on nutritional status among this group are limited. The general objective was to assess the nutritional status of grade 11 students. The descriptive cross sectional study was carried out in grade eleven classes in government schools in type 1AB and 1C. 12 different schools were selected randomly. BMI was calculated and nutritional status was assessed using the age and sex specific BMI- percentiles growth charts and WHO cutoff marks. The prevalence of thinness (<5th percentile) was 49%, the prevalence of risk of overweight (85th -95th percentile) was 6.5%, and prevalence of overweight (>95th) was 2.1%. Boys were at higher risk of both underweight and overweight than girls. The nutritional status showed statistically significant associations with maternal education level and the number of siblings in the family. Of all the students, 32.3% were not satisfied with their current body weight and most of them were girls (39.5%). Of the students who belonged to risk of overweight category 64% were not following any weight related practices. Over half of the risk of overweight students' (60%) perception was that they belonged to normal weight category and 50% of overweight students assumed that their body weight is within the normal range and the other 50% assumed that they are in risk of overweight. But none of the overweight students perceived that they are overweight. Skipping breakfast was the major problem (36.7%). Under nutrition, risk of being overweight and overweight are the problems of adolescence. Awareness, health education and focused interventions are timely requirement to minimize health related problems of adolescents in Sri Lanka.

Key words: Adolescence, Nutritional Status, BMI (Body Mass Index), Sri Lanka

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Assessment of possible social and entomological risk factors affecting transmission of dengue in the District of Gampaha

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Dengue is the most important mosquito-borne viral infection transmitted to humans in Sri Lanka causing more than 30,000 cases annually. The objective of the study was to identify possible social and entomological risk factors affecting transmission of dengue in Gampaha district where the second highest number of dengue cases recorded during last ten years. Four Medical Officer of Health (MOH) areas were selected based on annual number of dengue cases greater than 250 for last ten years. One GramaNiladhari (GN) division was selected from each MOH area as a study area where the highest number of dengue incidents reported. In each study area, a cluster of 150 households was selected and household and entomological surveys were conducted. The selected areas were Eriyawatiya (Kelaniya MOH), Welikadamulla (Wattala MOH), Akbar town (Mahara MOH), and 3-Kurana (Negombo MOH) GN divisions. There were 2577 population in 600 households in the study areas and 53.5% were females. Average size of a homestead was 17 perches and most of the households (98%-588/600) were individual house. Main vegetations in the homesteads were grass and bushes (97%-583/600) and potential breeding places of dengue vector mosquitoes were observed in 96.1% (577/600) households. Main dengue vector mosquito present in the captured Aedes adult mosquitoes was Aedes albopictus (92.9%-183/197). Most prominent breeding places were discarded bottles and tins (4.0%-15/371), plant axils (9.7%-36/371), plastic containers (26.4%-98/371), and roof gutters (4.3%-16/371) in the observed premises and 9.2% (34/371) were Aedes larvae positive. Most frequent mosquito preventive measure was bed-nets (30.3%-182/600), but mosquito coils (30.8%-185/600) and vaporizers (17.6%-106/600) were frequently used. Participants have adequate knowledge about the disease, but they neglect preventive measures and highly depend on government vector control programs. Unplanned households, crowded conditions, poor waste management systems, and negligence to pursue preventive measures may be possible risk factors and therefore, frequent encouragement is needed to control dengue transmission.

Key words: Dengue, Gampaha, Sociological and entomological risk factors

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Awareness among Sri Lankan first time mothers' informal identification of newborns' hearing difficulties and /or hearing disabilities by themselves

S.M.A.I Senanayake

Early identify of hearing difficulties and/or disabilities among newborns are very essential to provide or guide them to further management and/ or rehabilitation options as soon as possible. Hence it is vital step to natural growth of speech and language without any failures. For the study three (3) midwives were selected by using cluster sampling method. Midwives were asked to provide list of mothers who become first time mothers during last twelve months time. Sixty (60) mothers were selected by simple random sampling methods via the list of names which was given by midwives of each district of western province. Selected mothers were asked to complete questioners. The questioner was mainly in two parts; including personal details and the knowledge of identification hearing difficulties among the infants. Based on the information which was given by participants data analyzed by manually.

	Name of the District	
Western province	Colombo	20
	Kaluthara	20
	Gampaha	20
	Total participants	60

Manually analyzed data concluded that maternal awareness of the identification of hearing difficulties among infants was not affected by geographical area of the mothers or age of the mothers. But it was highly influenced by the level of education of the participants. Readiness or/ and willingness of the acceptance of the new information through professionals or social and public Medias are predisposed by Education level of the mothers'. Even though they reached their Ordinary Level education, it was not helped to achieve satisfactory level of the score for the questionnaires regarding readiness or/ and willingness of the acceptance of the new information through professionals or social and public Medias of deification of newborns' hearing difficulties and /or hearing disabilities by themselves. Respectively it was below 75%. Further there should be national protocol to promote raising awareness among mothers to early identification of their newborns' hearing difficulties by themselves. Therefore, usage of island- wild data prevalence is must hence to create more convenient picture regarding the results of the study.

Key words- Newborns, Hearing disabilities, Hearing Difficulties, Natural Speech and Language Development, Management and/ or rehabilitation optio

Cardioprotective and cardiotoxic effects of flavonoid quercetin on rat embryonic heart-derived female H9c2 cells

K.S. Mohammed Abdul1*, H.A.S.D. Perera2, R. Vikram3, R. Ramachandran4, J.M. Dickenson5

Naturally occurring flavonoid quercetin is capable of scavenging free radicals and possess antioxidant properties. Present study explores cardioprotective and cardiotoxic effects of quercetin on rat embryonic H9c2 cardiomyocytes. MTT reduction assay method was used to assess H9c2 cell viability upon quercetin pre-treatment and exposure to hydrogen peroxide (H₂O₂). Moreover, various concentrations of quercetin (1-100 μ M) were used to determine the toxic effects on H9c2 cells over time (i.e. 24, 48 & 72hrs). Western blotting technique was used to investigate phosphorylation of Extracellular signal Regulated Kinase (ERK) in quercetin exposed H9c2 cells. Morphology of H9c2 cells were studied using coumassie blue staining. H9c2 cells pre-treated (30 min) with quercetin (100 μ M and 30 μ M) followed by 2hr incubation with 600 μ M H₂O₂ significantly protected the cells from H₂O₂-induced cell death. H9c2 cells pre-treated with 100 μ M quercetin (#p< 0.05 vs H₂O₂) were significantly better protected than 30 μ M quercetin pre-treated cells in H₂O₂-induced cell death (**p< 0.01 vs control; n=5). Phosphorylation of ERK increased in the presence of 600 μ M H₂O₂ alone. Whereas, quercetin (100 & 30 μ M) pre-treatment effectively reduced the phosphorylation of ERK (followed by 2hrs 600 μ M H₂O₂ exposure) in H9c2 cells. Total-ERK levels were unaffected in (with/without) quercetin pre-treatment. Morphology of H9c2 cells showed shrinkage and death due to oxidative stress induced by 600 μ M H₂O₂. 24hrs exposure of quercetin (up to 100 μ M) on H9c2 cells had no significant effect on viability. 48hrs exposure of quercetin (range 1-100 μ M) on H9c2 cells decreased viability in a dose dependent manner. Whereas, 72hr exposure significantly decreased the viability of H9c2 cells with higher concentrations of quercetin (i.e. 100 μ M and 30 μ M) (**p < 0.01 vs Control). In summary, quercetin has a significant protective effect against H₂O₂ induced cell death. Reduced ERK phosphorylation may have protective effect on H9c2 cells. On the other hand, prolonged exposure with higher quercetin concentrations induced cell death.

Key words: Quercetin, Antioxidant, Cardioprotection, Cardiotoxicity

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Characterization of Anopheline larval habitats and species composition of aquatic macro-invertebrates in Trincomalee District, Sri Lanka.

R.M.T.B. Ranathunga, P.A.D.H.N. Gunathilaka, D.N. Kannangara, W. Abeyewickreme, and M.D. Hapugoda

Malaria control methods that aim to reduce adult vector populations by targeting their aquatic immature stages. A better fundamental understanding of the biology and ecology of these essential stages could contribute to the implementation of current control methods and to the development of novel strategies. Objective of this study was to examine breeding habitat diversity and analysis of richness, diversity and geographical distribution of Anopheline larvae and the species composition of aquatic macro-invertebrates in their oviposition sites in Trincomalee District.

Fifteen major permanent breeding places in five possible malaria sensitive sites (Gomarankadawala, Ichchallampaththu, Mollipothana, Padavisiripura and Thoppur) in Trincomalee District were selected. Anopheles larvae and macro-invertebrates were collected using standard methods for 16 months (April, 2013-July, 2014) and they were identified microscopically. The Shannon diversity index (H') was used to characterize species diversity at the five study sites by its abundance and evenness of the species present. ANOVA were used to analyze the correlation between macro-invertebrates and mosquito larval abundance.

In total, 4478 including 11 species of Anopheles larvae were identified. *An. subpictus*, *An. nigerrimus* and *An. peditaeniatus* (71%) were the most abundant and widely-distributed species. Anopheline larval diversity was highest in Mollipothana ($H'=1.986$). Whereas in Gomarankadawala, Ichchallampaththu and Thoppur where $H'=1.721$, $H'=0.857$ and $H'=0.762$ respectively. In total, 28 species of aquatic macro-invertebrates were identified and highest diversity was recorded in Mollipothana, Gomarankadawala and Ichchallampaththu ($H'=3.14-2.56$). This deduces that the species richness and diversity of Anopheles mosquitoes and macro-invertebrates are higher in these areas. The presence of permanent breeding places may be the factors for this phenomenon.

This study represents the first systematic update to the distribution of macro-invertebrates associated with Anopheles mosquito oviposition sites in Trincomalee District. Knowledge generated on the ecology of Anopheles mosquitoes will help to eliminate malaria vectors in the country.

Key words: Anopheles larvae, abundance, macro-invertebrates and diversity index.

Community based health promotion intervention to improve Nutritional status of children less than five years in rural community in sri lanaka.

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Introduction

The level of child nutrition plays a crucial role in growth & development which construct lifetime effect. This study was intended to improve nutritional status of children through community based health promotion intervention.

Methodology

Quasi experiment design and a stratified cluster sampling method was used to select intervention and control groups for the study. (30 families) Objectives of this study were 1) To design and implement an intervention to address selected determinant factors of nutritious food intake of children, 2) Assess the effectiveness of the intervention in relation to change in variety of food intake, frequency of food intake, parental involvement, appetite peer pressure and media influence of feeding.

An interviewer administered questionnaire was used to collect information. Weight of the children were measured using a measuring scale. Mothers were empowered to identify essential areas to improve nutritious food intake and design activities accordingly. Diffusion innovation Theory and Health belief Model were utilized in designing of the intervention. “Nutritional Butterfly” was design to overcome underling factors identified by mothers. Communities were continued with collective and individual level activities while addressing obstacles. Progress of two groups were obtained by Interviewer administered questionnaire, Focus group discussion, daily records of the mothers and by measuring weight of children.

Result /Conclusion

Nutritional Food intake level was changed by 87% in intervention group, 7% by control group. Statistically significant differences between pre & post results in intervention group ($t=12.07$, $p<0$) was noted, while the pre & post results in control group ($t=1.75$, $p=0.09$) was not significant at the 95% CI. Average age of the study subjects were 3 years in both groups. Mean weight gain was 340 g. Therefore the health promotion intervention which mainly targeted children less than five years is found to be effective to improve the nutritional food intake and weight of children in rural communities.

Key words: Health promotion, Nutrition, food intake, Determinants

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Comparison of gastric emptying of a solid meal with a semi-solid meal using real-time ultrasonography in a cohort of healthy individuals.

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Aims

Routine performance of solid gastric emptying (GE) to assess gastroparesis is not feasible due to prolonged test duration and cumbersome preparation of test meals. Substitution of a commercially prepared semisolid meal could increase feasibility. This study compared GE of a solid and semi-solid meal.

Methods and materials used

Thirty (30) healthy volunteers underwent gastric emptying by real-time ultrasonography after partaking a solid meal (Mung kiribath) and semi-solid meal ('Nestum mung') on two separate days. The calorie content of each meal was 350 Kcal and consisted of approximately 60% carbohydrates, 30% fat and 10% proteins. The pyloric antral area, amplitude and frequency of contractions were measured at 5, 15, 30, 45, 60, 90, 120, 150, 180, 210 and 240 minutes after ingestion.

GE parameters were compared and correlated by using Wilcoxon Signed Ranks test and Spearman Rank Correlation. A $P < 0.05$ was considered as statistically significant.

Results

The subjects were 17 males (mean (SD) age 29.4 (6.0) years, BMI 23.4 (2.94)) and 13 females (mean (SD) age 37.2 3 (11.9) years, BMI 22.9 (4.34)).

Mean (SE) fasting antral area, antral areas, gastric emptying rates (GER) and gastric residual ratios at each time point did not differ significantly between the meals. At the end of 4 hours, the mean emptied percentage of the semisolid meal and solid meal was 81.1% and 70.6% respectively. GER of semisolid meal at 90min significantly correlated with GER at 240min. There was no correlation of the solid meal with the 90min and 240min GER.

Conclusions

A semisolid meal could be substituted in place of a solid test meal. A gastric emptying test can be performed in 90min when utilizing a semisolid meal as opposed to 4 hours when utilizing a solid meal. Ease in preparation of the semisolid meal and reduction in test time increases test feasibility.

Key words: Gastric emptying, Real-time ultrasonography, Solid meal, Semi solid meal

Determination of appropriate positioning of the ovitraps for dengue mosquito surveillance

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Three months ovitrap survey was conducted to assess the suitable position in placing the ovitraps for dengue vector mosquito surveillance and this study was initiated due to loss of valuable data from our previous studies as a result of physical damage of the ground kept ovitraps. Thirty four households in the Ragama Medical Officer of Health area in Gampaha District were selected to conduct the ovitrap survey during the period of May to July, 2015 to select the most appropriate positioning of the ovitrap. The conventional black plastic ovitraps (3.2x 2.7 cm) were used in this purpose to collect aquatic stages of *Aedes* mosquitoes while placing plywood paddle (4 x 0.5 cm) over the upper rim of each coded ovitrap. A total of 136 ovitraps were used in the study site providing four ovitraps (2 each indoor & outdoor) for each house while one of the ovitraps of indoor and outdoor being hung and other being kept on the ground. In positioning ovitraps, the outdoor ones were kept 3m away from the house while leaving indoor ovitraps in the living room in close proximity to racks/hanging clothes or partially shaded places. Following collection of samples at each week, ovitraps were washed thoroughly, refilled with new water and a new paddle, and corresponding data were recorded and analyzed. These analyses revealed that number of larvae and the number of *Aedes* mosquito eggs present in the two different ovitrap positions (Ground kept vs Hung) were not significantly different; in spite of significant difference (P=0.001) between the outside and inside placements. Further, significantly higher values were observed for both number of mosquito eggs and larvae present in each ovitrap kept outside (60 and 13 respectively) than those placed inside (32 and 3 respectively). Furthermore, slightly higher values were observed for hung ovitraps (49 and 9 respectively) than ones kept on the ground (43 and 7 respectively). Finally, ovitrap placed above the ground level was selected in continuing the routine ovitrap survey, as there was considerable reduction of mechanical damage to the latter thus facilitating continuous data collection.

Key words: Aedes mosquito, ovitrap

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Differentiation of male germ cells from human umbilical cord blood derived mesenchymal stem cells

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Rationale: Modelling the process of spermatogenesis is significant in elucidating important mechanisms such as reduction in ploidy, chromatin repackaging, initiation of motility, expression of different genes etc. Stem cell researchers are accumulating more data favouring towards the hopes of infertile males.

Aim: To differentiate male germ cells using mesenchymal stem cells (MSCs) isolated from human umbilical cord blood.

Methodology: MSCs from umbilical cord blood were isolated, expanded and characterized using standard protocols. The cells at the second passage were induced with 10 µM All Trans Retinoic Acid (ATRA) for two weeks. Stage specific genes expressed or suppressed at pre-meiotic, meiotic and post-meiotic stages were detected using Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) technique, before and after the ATRA treatment. Morphological changes were assessed microscopically.

Results: OCT4 a stem cell marker, and PLZF an early Spermatogonial Stem Cells (SSCs) marker, were down regulated during the induction period. Expression of other germ cell markers; pre-meiotic (Stra8), meiotic (Scp3) and post-meiotic (Acr, Prm1, Tekt1) were up regulated. However, morphological changes related to specific cell lineage were difficult to differentiate.

Conclusion: Human cord blood derived MSCs can differentiate in to germ like cells without genetic manipulation. Further studies are designed to improve the efficacy of the culture system using sertoli cells and hormones.

Key words: Cord blood, MSCs, ATRA, Male germ cells.

Effectiveness of early stretching exercises for range of motion of the shoulder joint, state of axillary scar and quality of recovery in burnt patients admitted to the Burns unit of the National Hospital of Sri Lanka

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Background: Burn injuries can result in long term impairment, limitation and activity participation restrictions in a patient's life. The majority of burns occur in low- and middle-income countries. In axillary or shoulder burns scar contracture is common and leads to loss of shoulder movements and function.

Purpose: This study aim was to compare outcomes of an early stretching exercise programme on the range of motion of the shoulder joint, state of axillary scar and quality of recovery for patients with upper limb burn with a control group. This study has not been discussed in the previous literature.

Methods: A randomized controlled study was conducted in National Hospital of Sri Lanka. Patients from 15 to 55 years of age with a total burn surface area (TBSA) of 10% to 45% involving the shoulder joint and axilla were eligible. Participants were randomized into intervention and a usual care (control) groups. There were 110 patients in each group. The study protocol lasted 14 days for each participant in the intervention group, whilst the controls had usual care. Range of Motion (ROM) was measured with a Universal Goniometer. Functional recovery (FR) and state of the axillary scar was assessed with the Quick DASH questionnaire and Vancouver Scar Scale (VSS). Data were obtained before and after the intervention phase and at 3, 6 and 12 months of post burn.

Results: Age, intervention group mean [SD] 29.76[9.81] vs control group mean [SD] 30.31 [9.45] and TBSA%, intervention group mean [SD] 26.15[9.45] vs control group mean [SD] 24.60[9.56] were not significantly different. There were highly significant differences ($p > 0.0001$) in ROM, FR and the state of the axillary scar in favour of the intervention group.

Conclusion: This study demonstrated that early stretching exercise regime significantly improved the ROM and functional recovery of the shoulder joint and scar condition of the axilla for adults with burns involving the upper arm.

Key words: Range of Motion (ROM), Stretching exercises, Axillary burn, Burns Scar, Functional recovery

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Emerging Spatio-Temporal Trends in Dengue Incidence in Poojapitiya Medical Officer of Health (MOH), Central province, Sri Lanka

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Dengue has emerged as one of the major threats to the health sector of many countries including Sri Lanka, due to the increasing number of reported dengue cases over time. Therefore, a statistical and geo-informatics based analysis of the spatio-temporal trends in dengue distribution was carried out to identify recent spatial and temporal trends in dengue distribution patterns, while assessing the susceptibility of the population to dengue infection in the Poojapitiya Medical Officer of Health (MOH) area. Monthly records of reported dengue cases from 2009 to 2013 of the Poojapitiya MOH area were acquired and spatial maps of the recorded dengue case distribution in each Grama Niladhari Division (GND) were developed by using Arc GIS (version 10.2). Normal Chi square test coupled with Paired-Chi square test in MINITAB (version 14.12.0) were used to investigate the impact of gender and age on the infection. Galhinna GND indicated the highest susceptibility to dengue throughout the study period, while the rest of the GNDs indicate less (37 GNDs) or null (29 GNDs) susceptibilities. As suggested by the results of the Paired-Chi square test [$>X^2_{(66, 0.95)} = 85.951$], the emergence of dengue outbreaks indicated a significantly declining trend in recorded dengue cases in all of the GNDs (regardless of the outbreak in 2012) during recent years. The Percentage Infected Male : Female Ratio (PIMFR) suggested that the, males had a relatively high susceptibility for dengue infection than females with 63.9 : 36.1 of average PIMFER ($p=0.00<0.05$ at 95% of significance). According to the Paired-Chi square test, the vulnerability of the age groups shifts significantly throughout the study period [$>X^2(7, 0.95) = 14.067$], where the age groups of 11 - 20 and 21 – 30 indicated high vulnerability to dengue, while >61 age group remained as the least vulnerable group for dengue infection. The identification of the potential high risk GNDs with high susceptibility to the infection of dengue along with the vulnerable age groups in the community would assist the relevant vector controlling agencies to concentrate their efforts, ensuring the effective controlling of dengue outbreak occurrence within the of Poojapitiya MOH.

Keywords: Dengue, GIS, Temporal and Spatial Trends, Poojapitiya MOH

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Epidemiology and clinical profile of cobra (*Naja naja*) envenomation in wet zone of Sri Lanka

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Cobra (*Naja naja*) is widely distributed in Sri Lanka, but its bites are less common compared to viper bites. Its envenoming could be deadly due to neurotoxicity and severe local tissue necrosis.

We describe a series of 12 patients with cobra bites in the Provincial General Hospital, Ratnapura, Sri Lanka over two years from October 2013. Of the 12 bites, offending snakes were available in 5 (41.6%) cases for identification and in the rest patients have identified cobra as the responsible snake.

There were 8 (66.6%) males and 4 (33.3%) females including a pregnant mother of 37 weeks gestation. The age of these patients ranged 17-72 years. All bites occurred during day time (9am-6pm). The bitten sites were hands (5; 41.6%), feet (4; 33.3%), legs (2; 16.6%) and face (1; 8.3%). Four (33.3%) patients were bitten indoors, 3 (25%) while working at home gardens, 2 (16.6%) while working in tea estates and walking on foot paths and 1 (8.3%) while working in a paddy field.

Four (33.3%) patients had dry bites and 8 (66.6%) had envenoming. Of envenomed patients 6 (50%) patients developed neurological signs. Five had ptosis, double vision and ophthalmoplegia, 3 had respiratory failure and 2 had dysphagia. Four (33.3%) patients developed coagulopathy (positive -whole blood clotting test, PT and aPPT) and myotoxicity (muscle pain and tenderness) whereas 3 (25%) had local tissue necrosis. Local effects were pain (11; 91.6%), swelling (8; 66.6%) and bleeding (3; 25%). Two patients (16.6%) needed ICU care and 2 died. Antivenom serum (AVS) was administered to 7 (58.3%) patients of them 4 (57.1%) developed allergic reactions.

We observed coagulopathy which was not a well established manifestation in cobra envenoming. But in order to confirm this, there should be a toxin analysis regarding cobra venom. With the occurrence of coagulopathy and low incidence of local tissue necrosis suggests possible geographical variation of venom composition.

Key words: cobra, Naja naja, envenomation, coagulopathy, Sri Lanka

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Explore Factors effecting elevate the Relapse Rate among Drug Users in Sri Lanka: Qualitative study

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Introduction: People abuse substances such as drugs, alcohol, and tobacco reason of various determinants and drug abuse is one of the prominent problems that affect the country in many aspects including social, economic, education and health. According to the Sri Lankan context, National Dangerous Drug Control Board (NDDCB) engages in compilation and implementation of the national policy regarding drug abuse and related areas. In addition to the rehabilitation camps set up by the NDDCB, about 15 Non Government Organizations are also operating their own camps under the NDDCB for rehabilitating drug addicts. According to the NDDCB 45,000 Sri Lankans were drug addicts. NDDCB has facilities to treat only 1,000 of drug users annually, while the NGOs also treat 2,000 drug addicts annually. However, relapses are common in the case of drug addiction and 40 per cent of the people who are rehabilitated tend to use drugs again.

Objectives: To explore factors effecting, increase the relapse rate among drug users in Sri Lanka.

Methods: Study design was a qualitative design. Experts in treatment field for drugs users were study subjects and they were selected based on purposive sampling method. Six group discussions and twelve in-depth interviews were conducted to data collect. Based on the study objective, at the beginning personal factors were explored. After that, social factors were explored. Saturation method was the guiding method and data was analyzed through thematic analyzing method.

Results: The study found that, drug users' escape from the treatment process effect of these underlines factors.

Misleading situations of treatment institutions; different agendas of drug users while treatment process; dramatically descending of external motivation for quitting drugs; unsuccessful process of internal change in quitting drugs; poor change in attractive image; values and attachment to tobacco, alcohol and drugs; organizational gaps of treatment procedures; promoting family environment.

Conclusion: Rehabilitation mechanism should be strengthened with more collaborative inputs and need a special rehabilitation mechanism which address above determinant factors.

Key words: Tobacco, Substance abuse, Drug policy, Determinant

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Gamma- ray irradiation as a method for sterilization of males of *Aedes albopictus* (skuse) for its control through Sterile Insect Technique (SIT)

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Sterile Insect Technique (SIT) can be integrated with other conventional control methods to suppress population of *Aedes albopictus*, a vector of dengue in Sri Lanka. A study was conducted to determine the effective dose of gamma radiation for producing sterile males of *Ae. albopictus* mosquitoes.

A batch of male pupae (n=32) aged 24-48 hours in F1 was irradiated using Gamma 220, (Co₆₀) irradiator with 25, 30, 40, 50, 60 and 70Gy in duplicates. Adult emergence rate and male longevity were recorded. Virgin females from the same cohort (F1) were introduced into each cage for mating and fed blood starting 5 days after emergence. Then, females were isolated in individual tubes and hatching rate of individual egg batches was calculated after two weeks of egg maturation in hatching solution. Spermatheca of female mosquitoes were dissected and insemination rates were calculated after egg laying.

Male mosquito pupae in F1 showed low mortality (0-3.12%) immediately after exposing to radiation (0-48 hours). After 14 days of the irradiation, survival rate of male mosquitoes in F1 were 82.7%, 79.7%, 56.3%, 73.4%, 76.6%, 76.1% and 56.3% when irradiated at 0Gy, 25Gy, 30Gy, 40Gy, 50Gy, 60Gy and 70Gy respectively. No significant difference was observed among survival of males in different doses except in 30 Gy and 70 Gy (Kaplan-Meier survival analysis, Log Rank test). Low survival rate at 30 Gy could be due to mosquito handling errors and need to be retested. Based on the hatching rate of the F2 progeny, males (F1) showed 89%, 93%, 97%, 99%, 99% and 100% sterility when irradiated at 25Gy, 30Gy, 40Gy, 50Gy, 60Gy and 70Gy respectively. Insemination rate of the irradiated males among different doses and controls were above 90% in F1 based on spermatheca dissection of blood-fed females (F1).

50 Gy is recommended as the most suitable radiation dose to produce 99% sterility in *Ae. albopictus* males which has 76% survival after 14 days of irradiation. This dose can be used to produce sterile males of *Ae. albopictus* for a SIT programme.

Key words: Dengue, Aedes albopictus, Gamma rays, Irradiation, Sterile Insect Technique

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Impact of a native ‘natural spice mixture’ on selected biomarkers, reduction of excess weight in purposely selected overweight/obese females.

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The objective of this study is to explore the changes in the body weight and selected biomarkers of overweight/obese women after a four month intervention of native ‘natural spice mixture’. This study was done at National Ayurveda Teaching Hospital, Borella. Volunteers (129) were participated, and BMI and selected biomarkers (lipid profile) were measured before and after intervention. Chi square test revealed that there is a significant weight reduction after the intervention (Chi Square = 36.74, df = 9, p < 0.05). Although there was no participant with a normal BMI before intervention, 7 % of participants have attained normal BMIs after the intervention. The BMI range 25-29.9 (overweight) have increased by decreasing the ranges 30 – 34.9 (Obesity-1), 35 - 39.9 (Obesity-2) and ≥ 40 (Morbid obesity). Before intervention the percentages of ‘High’ and ‘Borderline high’ cholesterol were 17.8 % and 38.8 %, respectively and after the intervention the same were reduced to 7 % and 22.7 %. Before intervention only 43.4 % of the participants were with the normal total cholesterol range, but it increased to 70.3 % after intervention with a significant (p < 0.05) change. Only 6.2 % belonged to the ‘High triglyceride’ category before the intervention and after the intervention it reduced to 2.2 %. Percentage of ‘Optimal’ and ‘Near optimal’ levels of LDLs increased from 17.1 % to 27.6 % and from 28.7 % to 39.4 % after the intervention, respectively. The ‘Borderline’ and ‘High’ levels of LDLs were reduced by 5.8 % and 11.6 % after the intervention, respectively. Study shows that 19.4 % of the participants had ‘low HDL’ before the intervention and it increased to 23.4 % after the intervention. The intervention of ‘natural spice mixture’ revealed the promising effect on weight reduction and rearranged the dyslipidaemia.

Keywords: ‘natural spice mixture’, BMI, lipid profile, obese,

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Individual risk factors of snakebites in Sri Lankan community

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Introduction

Sri Lanka has 92 identified snake species, and one of the highest snakebite incidence (SBI) rates in the world. According to hospital statistics about 37,000 patients are admitted to government hospitals annually as a result of snakebite. The aim of the present study is to identify individual risk factors for snakebite in Sri Lanka.

Methodology

A community-based island-wide study (“National Snakebite Study”) was conducted in all nine provinces of Sri Lanka, with 5,000 households sampled in each province. All the residents of the selected households were included. One-year recall data for all permanent residents of that particular household was obtained regarding the experience of snakebite. Generalized linear models were used to model SBI. Individual-level gender, age, ethnicity, religion, income, education and employment were included as explanatory variables. Statistical analysis used the R programming language. Statistical significance was assessed at the 0.01 level.

Results and conclusions

Out of 125,391 participants, 63,604 (50.7%) were males. There was no SBI difference amongst 10-year interval age groups from 30 to 59, hence these three age groups were collapsed. High SBI was observed in the age 30-59 year group compared to age less than 20 ($P<0.001$), 20 to 29 ($P<0.001$), 60 to 69 ($P<0.003$) and over 70 ($P<0.007$), with lower SBI in the two extreme age groups. Males had higher SBI compared to females ($P<0.001$). Field workers had higher SBI compared to non-field workers ($P<0.001$). Ethnicity and income showed a significant interaction. Low income non-Sinhalese had high SBI compared to middle income (Rs. 5000-19,999, $P<0.001$) and high income (Rs.>20,000, $P=0.001$) non-Sinhalese, whereas Sinhalese had high SBI irrespective of their income status. In summary, the high risk categories for snakebites are males, field workers, 30 – 60 year individuals, Sinhalese and low income non-Sinhalese.

Key words: community based survey, Snakebite, risk factors

Larvivorous Potential of Four Fish Species Against Dengue Vectors in The Kandy District of Sri Lanka

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There is a growing concern on the effects of insecticides that are used for the control of mosquito vectors of human diseases. Introducing a self propagating predator into the vector breeding habitats may present continual biological control of vector population. In order to control dengue vectors, namely, *Aedes aegypti* (Linnaeus) and *Aedes albopictus* (Skuse) (Diptera: Culicidae), larval control is one of the major strategies. The objective of this study was to evaluate the larvivorous potential of fish species against dengue vectors. Four fish species, namely, *Poecilia reticulata* (guppy), *Aplocheilus dayi* (Udahandaya), *Oreochromis niloticus* (Tilapia) and *Puntius bimaculatus* were collected from natural breeding habitats. They were placed in fish stock cement tanks at the Regional Office of the Anti Malaria Campaign in Kandy till they were used for the study that was conducted from January – June 2015. In order to determine the larvivorous potential of the fish species, five fish of each species were placed in separate enamel trays containing de-chlorinated water and allowed to acclimatize for half an hour. Afterwards, a batch of 25 *Ae. aegypti* larvae was introduced to each tray and counted the number of larvae remaining after 5, 10, 30 minutes, 1 and 24 hours. When all 25 larvae are consumed, another batch of 25 larvae was introduced to those trays and this was continued till the study was completed. At the end of study period (24 hours), the number of larvae consumed per fish for each fish species was determined. This study was carried out in the laboratory with 6 replicates. The experiment was repeated for *Ae. albopictus*. Overall, *Oreochromis niloticus*, *Poecilia reticulata*, *Aplocheilus dayi* and *Puntius bimaculatus* consumed 97.6, 66.9, 49.3 and 47.5 *Ae. aegypti* and 98.4, 62.3, 51.2 and 45.4 *Ae. albopictus* larvae respectively. All four fish species showed larvivorous activity and *Oreochromis niloticus* showed the highest larvivorous potential followed by *Poecilia reticulata*. Since *Ae. aegypti* and *Ae. albopictus* breed in water storage containers such as cement tanks, barrels and ornamental ponds, the fish species that showed high larvivorous potential may be considered for dengue vector larval control in such containers. In order to achieve good community participation for the use of larvivorous fish for dengue vector control, effective health education is of utmost importance.

Keywords: Larvivorous Fish, Dengue Control.

Performance of Sinhala speaking normative hearing children on Monosyllabic – Trochee – Polysyllabic Test (MTP)

S.M.A.I Senanayake

Development of Monosyllabic-Trochee-Polysyllabic (MTP) test in Sinhala aim is to be used in measuring auditory performances in children who are audiological rehabilitated with their native language. Participants were selected with simple random sampling method, from the pre-school and school set up. The participants were chosen upon obtaining written consent form to ensuring their voluntary involvement for the study. A Total number of two hundred (200) subjects were tested, which includes hundred and five (105) males and ninety five (95) females between the ages two (2) to eight (8) years which then was categorized into six (6) sub-groups according to their age. All participants must be native Sinhala speakers with normal hearing with no audiological and otological problems, with normal speech and language development and with equally same age. For this purpose, all participants directed to a pre-test evaluation. Prior to administering the test, a pilot study was carried out. After that, test was administered by using formulated Sinhala MTP word list where the subject was asked to repeat or point out relevant picture similar to the presented stimuli. Marks allocated for each correct pattern identification and/or word identification. SPSS analyzing data indicated the MTP performance score was not affected by age group. Through the study, except the word “banana” (kēsɛl), rest of the words in Sinhala MTP test, was age appropriate and socio- culturally appropriate for Sinhala speaking children in Sri Lanka. Further, MTP list can use as a clinical assessment tool for cochlear implantees and hearing aid users. (Key words- MTP, Auditory performances, Pattern and Word Identification)

Phenotype distribution of human serum paraoxonase 1 in a cohort of healthy Sri Lankan individuals

S.S.K.Marasinghe¹, R.Sivakanesan²

Cardiovascular diseases include diseases of heart, vascular diseases of brain and diseases of blood vessels. Cardiovascular diseases are responsible for over 17.3 million deaths per year and are the leading cause of death worldwide. Most of these deaths occur before age of 60 and could have largely been prevented. PON 1 is a cardioprotective enzyme synthesized in liver. It can be used as a personalized, proactive measure in assessing CVD risk in people. Serum samples of 155 apparently healthy individuals between 19-70 years were used for the study. Phenotype distribution was assessed using dual substrate method. Salt stimulated PON 1 activity (with 1M NaCl) and arylesterase activity was measured spectrophotometrically using paraoxon and phenyl acetate as substrates. Out of 155 participants 77 were females and 78 were males. In this study population, a wide interindividual variability (up to 18 folds) of PON1 activity was found. The mean of basal, salt stimulated paraoxonase and arylesterase activities were 222.4 ± 122.57 U/l, 302.36 ± 204.03 U/l and 1.72 ± 1.14 U/l respectively. The ratio of salt stimulated PON1 activity to arylesterase activity was used for definition of phenotypes. Based on the observed ratios, 3 distinct phenotypes AA (low activity), AB (Intermediate activity) and BB (high activity) were determined. The PON1 ratio varied from 0.21 to 4.99. The paraoxonase phenotype frequencies were approximately 44.52% (AA), 46.45 % (AB) and 9.03% (BB). The distribution of PON 1 phenotypes in this Sri Lankan population was trimodal. Individuals with low PON 1 activity may be more susceptible to CVD. They were advised to make necessary changes in life style and diet to mitigate risk of getting CVD.

Key words: Cardiovascular diseases, Paraoxonase, Arylesterase, phenotype

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Quantification of mucosal eosinophils in histologically normal ileal, colonic and rectal biopsies

S.K. Liyanage

Introduction: Increased gastrointestinal tissue eosinophils are noted secondary to many known disease entities and also due to primary eosinophilic gastrointestinal disorders. There is no general agreement with regard to the normal range of eosinophils in the intestinal mucosa. This study was carried out in a population of adults suspected of having irritable bowel syndrome (IBS).

Objectives: To quantify the normal eosinophil counts in different segments of the lower gastrointestinal tract (LGIT).

Methodology: The ileal, serial segmental colonic and rectal biopsies of 25 patients, suspected as having IBS, whose endoscopic findings and the routine histological findings were normal, were included in the study. Eosinophils were counted in up to 10 high power fields (HPFs) in each of these biopsies including ileum(174HPFs), caecum(185HPFs), ascending colon(AC-165HPFs), transverse colon(TC-182HPFs), descending colon(DC-177HPFs), sigmoid colon(SC-192HPFs) and rectum (183HPFs). Using the data analysis software ‘Stata’, the 95th percentile was obtained and taken as the upper normal limit /cut off level for mucosal eosinophils in each of these sites.

Results: The 95th percentile values for the mucosal eosinophils were, ileum-20/HPF, caecum-20/HPF, AC-15/HPF, TC-12/HPF, DC-12/HPF , SC-11/HPF and rectum-6/HPF.

Conclusion: There is a variability in the normal eosinophil counts in different segments of the LGIT. This study showed that it is necessary to have different upper normal limits for mucosal eosinophil counts in each segment of the bowel rather than a single value for the entire LGIT.

Discussion – A population suspected of having IBS were used to establish the normal eosinophil counts in different segments of the LGIT, because IBS is known to be a functional disorder and the routine histological examination reveals no mucosal abnormality. It has also been proven that this population reveals no increase in mucosal eosinophils and therefore, in the local settings, was considered as the best possible sample to represent the normal population in this study.

Total phenolic content of leaf, stem, root and flower of *Daturametel*

R.Piratheepkumar¹, R.Sivakanesan²

Daturametel is a medicinal plant used in indigenous system for treating bronchial asthma. In addition it is mentioned as a rejuvenating herb in Siddha texts. However there are no scientific studies carried out so far on *Daturametel*. This study was conducted to find the antioxidant potential of *Daturametel* by estimating the total phenolic content (TPC).

The plant was obtained from Government herbal garden and authenticated taxonomically by an authorized person. Leaf, stem, root and flower were separated from plant immediately after collection and washed thoroughly with tap water and dried in sun shade. Dried parts were powdered by multi fine grinder and stored air tight. For cold water extract, 10mg of powder of each part was crushed with 10mL distilled water and centrifuged for ten minutes at 5000rpm. Supernatant was taken carefully. Hot water extract was prepared in same manner, but additionally it was kept in a boiling water bath for 5 minutes. TPC was estimated by using Folin and Ciocalteu's phenol reagent. This study was carried out in six times with six different seasonal collection of *Daturametel*.

The total phenolic content in hot water extracts of leaf, stem, root and flower were 33.3mg ± 3.51, 30.67 mg± 2.1, 30.34mg ± 1.98 and 35.41mg ± 2.65 tannic acid equivalent/g dry weights respectively. It was little higher than that extracted with cold water extract (30.7mg ± 3.19, 26.26mg ± 1.77, 27.01mg ± 2.61, and 31.02mg ± 2.26 tannic acid equivalent/g dry weight) indicating a better extraction of phenolic compounds from the all parts at higher temperature. Flower showed highest TPC in µmol/g dry weight in cold as well as in hot water extract. All parts of the plant showed nearly equal TPC

Key words: Phenolic compound, Daturametel, Aqueous extract

Faculty of Science

‘PATH FINDER’ Application for android

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The population growth and technology development has increased traffic congestion in urban areas. If people can get traffic information before starting their journey, they can use alternative routes to avoid traffic instead of sticking in the traffic congestion. And also when it comes to long trips, it is better if the driver can roughly get an idea about how much of money will be needed to be spent on fuel.

Our intention was to develop an android application which is able to find the best route between source and the destination, considering the traffic jam and the minimum distance. Additionally the proposed system will facilitate users to reach the nearest fuel filling station when fuel is running low by providing information about the fuel condition of the vehicle while they are driving.

The traffic information forecasting has been done with the use of previous traffic count of selected route. Generally, prior data pattern labels have been used to train the Artificial Neural Network (ANN) to identify the traffic conditions. The shortest path is generated with the use of ‘Dijkstra's Algorithm’.

The challenge that we had to face was gathering data regarding traffic count in Sri Lankan roads at a given time because there is no proper way to collect traffic data. So we had to observe daily traffic count (vehicle count) in a selected route. We collected vehicle count during 10 days of period. According to the observation results we created simulated data set. Our total number of records was 388. In this case 70% of the data was used to train the network, 15% was used to validate and rest was used to testing purpose.

The accuracy of the traffic prediction was 99.5% according to the results of data trained using ANN.

Another challenge that we had to face was creating communication between neural network and the android application. To transfer data between JAVA program and the MATLAB neural network we had to use transferring medium. So to overcome this challenge we used TCP/IP socket communication which has the ability to call Java directly from within MATLAB. This application follows client server architecture where MATLAB environment is the server and android application is the client.

Key words: GPS, Android application, Traffic forecasting, Artificial Neural Networks, Vehicle routing, TCP/IP socket communication

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A Plug-in to Boost the Behaviour of a Rule-Based Expert System More Like a Human

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Artificial Intelligence (AI) is one major aspect of Computer Science. Among the applications of AI, expert systems are predominant. There are expert systems built for variety of subject domains such as education, medicine, and engineering, and were built by imitating the human experts with the ability to make accurate decisions by resolving the proper set of rules and facts stored in a knowledgebase to solve more complex problems. When it comes to systems, it is expected to be more accurate, reliable, efficient and complete. The current expert systems consists of many facilities such as user interfaces, reasoning of the system, knowledgebase, working memory, making inferences, prioritizing and an automatic way for the user to enter knowledge, with compared to the human experts. Even though, the expert systems are still behind and much specific in some aspect such as the abilities in generalizing concepts, drawing associations among knowledge entities depending on the causal relationships, adding new knowledge, removing irrelevant knowledge, prioritizing knowledge entities for the execution as per the input to gain improvements over generations of execution as human experts do. Among the technical categories of the expert systems such as rule-based, frame-based and induction-based, our concern is to improve the rule-based expert systems by solving the said problem by constructing a processing model which consists of the processing states such as Origin, Classified, Pre-State, Resolve and Terminate with newly introduced multiple sub-processes such as Input/Identify knowledge entities, Classify facts/rules depending on the causal relationships crafting the generalizing facility and Termination. When the system executes over generations, it produces outputs and gains improvements using the above mentioned processing model as per the input/queries. For this processing model, newly introduced sub-processes will be implemented using C programming language and will integrate to the current expert systems written in 'C Language Integrated Production System' as a plug-in. The system will be able to evaluate by comparing its states With-Plug-In and Without-Plug-In for the quality using a non-parametric test such as Mann-Whitney-U-test and for the time using a paired-t-test. As a result we are capable of providing an expert system which is more like a human expert.

Key words: Processing Model, Improvements gain through the Execution over Generations, Plug-in

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A Smartphone Based Traffic Information System (AFromT)

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Today traffic congestion is a growing problem in many metropolitan areas. It can have a big impact on our lives, career, future and even our safety. Several solutions have been proposed over the years to address traffic congestion. Traffic Information Systems (TISs) can play a significant role towards creating cities with improved traffic conditions. A smartphone based traffic information system is a cost-effective way to collect traffic data, leveraging existing communication infrastructure such as the cellular network. A traffic monitoring system based on GPS-enabled smartphones exploits the comprehensive coverage provided by the cellular network, the high accuracy in position and velocity measurements provided by GPS devices, and the existing infrastructure of the communication network. In this project, Location Based Services (LBSs) was used for the purpose of getting real time traffic information. When the user gives the destination of the tour, then the system provides the optimal route with minimum traffic, from the current location, according to the average speed of the other users on all the alternative routes. Also every user can communicate with other online users to cognizance the current traffic conditions, through messages. The experimental evaluation has shown that, because of this AFromT being introduced through the GPS Navigator, road users will be able to avoid traffic jams, unpredicted short way road plans as well as any unforeseen emergency changes of roads, road block etc., will be instantly communicated to the AFromT user. In addition to these features, AFromT will automatically inform the user, when they exceed the speed limit.

Keywords— Traffic information systems, Location Based Services, GPS navigator, Google map

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A Study on Loan Performance Using Data Mining Techniques

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Most of the modern financial companies offer loans to customers in order to build up their own business. Such companies have a major problem when they recover the loan as the customers do not pay the installments according to the signed contract. It is crucial to determine/create the appropriate strategies and to identify the risk free customers as there is high potential of non-performing loans. In order to predict the risk factors that affect to non-performing loan, Data Mining techniques were considered. This research discovered the factors/reasons for non-performing loan using the data from a reputed Finance Company.

This research focused on eighteen attributes which were referred to as factors affecting a non-performing loan state and the dataset contained with 30% of test data and 70% of training data from 750 records. Among those attributes eleven key attributes namely: Age, Area, Branch Name, Customer Job, Income, Loan State, Mortgage, Number of Terms, Overdue days, Product Type and Interest Rate were selected to create the data mining models. The considered mining models were namely: Neural Networks (NN), Decision Trees (DT) and Clustering (CL). These models were created using the Business Intelligence tool and the database was created in SQL Server Management Studio 2008R2.

The predicted probabilities (as a percentage) of Neural Networks, Decision Trees and Clustering models were 1.57%, 0.44% and 10.46% for non-performing loan state respectively. As the Clustering Model had the highest value it was chosen as the best algorithm to evaluate loan state by using Microsoft clustering method. The Clustering model was given ten clusters numbered from 1 to 10 and five clusters namely: 3, 6, 8, 9 and 10 were identified as the most inclined towards the non-performing loan state by comparative analysis. The predicted probabilities of selected clusters were 23%, 41%, 32%, 23% and 35% respectively and cluster number 6 showed a highest value and cluster number 10 showed the next highest value. Based on cluster performance, numbers 1, 2, 4, 5, 7 had a high probability of becoming performing loan and thus were not included in the analysis. According to the states of attributes within each cluster profiles Product Type, Customer Job, Mortgage, Income, Number of Terms and Interest Rate were identified and shortlisted as the factors affecting the non-performing loan state most.

The research identified that if the customer is self-employed or individual, a small property owner, or having a low income and depending on the type of mortgage (building, vehicle or non-mortgage) the loan tend to be non-performing. The longer duration for loan repayment or higher interest rates will also cause a loan to be non-performing. According to the above results it can be concluded that the high interest loans provided for the unemployed customers or customers with low income have a higher potential to be non-performing and hence resulting in a monetary loss for the financial company. Therefore a financial company will be able to improve its profits if they are more concerned about such customers and undertake suitable decisions. The model will support the financial sector in identifying the amount of loans that could be transformed into the non-performing state. Therefore the findings of this research will benefit the financial industry to reduce the risk of granting loans when providing loans in future.

Key words: Business Intelligence tool, Data Mining, SQL Server Management Studio 2008R2

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A study on the factors influencing supply chain quality management practices and their impact over a firm's supply chain performance

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With the accelerated evolution of today's business environment, the competition is no longer between businesses, but between supply chains of rival companies. Therefore, the supply chain managers have a huge responsibility to gain competitive advantage over rival supply chains in order to achieve and retain stakeholder attraction. The competitive environment of the twenty-first century requires achieving efficiency, high service levels, rapid response, and high quality and agility in products and processes. All these competitiveness could be achieved through improvement in quality performance in collaborative supply chain (SC) environment. In order to face challenges in quality management and to enhance performance, a sound knowledge about supporting factors for effective quality management practices are important. This research involves in studying the factors influencing supply chain quality management practices (SCQMP) and their impact over a firm's supply chain performance (SCP) in Sri Lankan apparel industry. Apparel industry is one of the most evolving industries in Sri Lanka, hence it is chosen as the domain for the research.

Through an extensive literature survey and the expert opinion from the industry, this research investigates the impact of the seven selected SCQMP over SCP. Both qualitative and quantitative data has been gathered through a structured questionnaire survey, through interviews from executive level to top management members working in supply chain and quality departments and from secondary data. Four plants of leading apparel export firms have been studied to obtain information under convenient sampling concept. Multiple regression analysis and Spearman's Correlation has been used to analyse data. The results indicate that customer focus, supplier quality management, operations focus and information analysis as the most significant SCQM factors influencing supply chain performance.

Key words: Supply Chain Quality Management Practices (SCQMP), Supply Chain Performance (SCP), Competitive Advantage, Apparel Industry

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Abstract on Global Knowledge Sharing for Implementing a Digital Manufacturing Lab (FabLab) for Rural Development in Sri Lanka

Digital Manufacturing is changing the way the world has seen manufacturing by sharing designs and blueprints over the internet. It will be possible to digitally print 3 -dimensional objects locally from anywhere “print almost anything”. According to Anderson (2012) digital revolution in fabrication technology interpreted as the third industrial revolution. Started as project at MIT, the concepts of digital manufacturing is spreading all over the world in the form of Fabrication Laboratory (FabLaB). A group of Sri Lankan Social Scientists from Sri Lanka, Europe and United States has been conducting a project to explore the opportunities for digital manufacturing in post -conflict economic development in Sri Lanka & being a manufacturing based economy, digital fabrication technologies can be used small scale industries such as artificial limbs, prosthetics in cost effective manner .The group has been collaborating over the internet in setting up of a FabLaB for empowerment and economic development of a rural community in Sri Lanka. The objectives of the project are to share knowledge, enhance innovation and technology transfer in community development, to engage multi- stakeholders including Universities, the government, private sector, NGOs, community and other key players. This paper will discuss the objectives, process, progress and challenges in this project. The purpose of the paper is to demonstrate the use of Web technologies in conducting a global knowledge sharing project and also to discuss the power of digital manufacturing to empower rural community in developing country context. The paper will discuss the dimensions of project covering the planning process, implementation strategies, challenges faced and expected outcome.

Keywords: Digital Manufacturing, 3-D Printing, innovation, knowledge sharing, social enterprise, internet

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Acidification and neutralization potentials of rainwater at University of Peradeniya

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Constituents present in rainwater affects compositional changes leading to acidification or neutralization, and hence the quantification of constituents in rain water. In this respect, the purpose of the present study was to establish a relationship between acidification and neutralization potential of rainwater particulates via bulk precipitation and ambient air quality via dry deposition. Analysis of 30 samples of bulk deposition and 11 samples of dry deposition collected during the four month period from May to September, 2013 at the University of Peradeniya premises for main ions responsible for acidification and neutralization reveals that Na^+ , Mg^{2+} , Ca^{2+} , K^+ , NH_4^+ , NO_3^- and SO_4^{2-} were major ions present in the samples, and further, Ca^{2+} and NH_4^+ dominated constituents for neutralization of rainwater acidity, while NO_3^- and SO_4^{2-} led to high level of acidity.

The regression analysis between the summation of the concentrations of NO_3^- and SO_4^{2-} vs. the summation of the concentrations of Ca^{2+} and NH_4^+ reveals that there is a significant correlation with $r = 0.66$ for bulk precipitation although the correlation is not good for dry deposition with $r = 0.38$. This difference can be attributed to the different deposition rates of particulates present in ambient air. . Regression analysis applied on each variable demonstrates that, Ca^{2+} can be present as CaSO_4 and $\text{Ca}(\text{NO}_3)_2$ and NH_4^+ can be present as $(\text{NH}_4)_2\text{SO}_4$ and NH_4NO_3 . Further analysis of the results of compositional variables indicates that 53.3% of SO_4^{2-} can be explained by Ca^{2+} and NH_4^+ in bulk precipitation, among which 47.5% appears as CaSO_4 and only 5.8% as $(\text{NH}_4)_2\text{SO}_4$. Further, only 19% of the NO_3^- is explained by both Ca^{2+} and NH_4^+ out of which 6% appears as $\text{Ca}(\text{NO}_3)_2$ and 13% as NH_4NO_3 . In dry deposition, 33.5% of SO_4^{2-} and 95.4% NO_3^- were explained by the above two cationic independent parameters, and 33% of SO_4^{2-} appears as CaSO_4 and only about 0.5% as $(\text{NH}_4)_2\text{SO}_4$. Among 95.4% of explained NO_3^- , 39.2% appears as $\text{Ca}(\text{NO}_3)_2$ and 56.2% NH_4NO_3 .

The linear regression analysis suggests that, Ca^{2+} is involved in a higher percentage (62.5%) for the neutralization process, whereas the involvement of NH_4^+ is at lower level of 37.5%.

Key words: Acidification, Neutralization, Rainwater, University of Peradeniya

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Adoption of Green Information Technology in Sri Lankan Banks

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It is important for organizations to operate within a certain level of equilibrium where both financial and environmental performance of a business are achieved while remaining competitive. The notion of Green Information Technology is gaining considerable attention and emphasis due to its impact on cost effectiveness of business undertakings and environmental sustainability. The IT sector has taken this initiative quite early and has been working towards a sustainable development model which was later termed as the “Green Information Technology”. Today, Green IT has evolved to become one of the major IT initiatives that focus towards ecological sustainability. The “Green IT Readiness” has sprung up as a framework as a result of this initiative to guide organization to achieve their Green objectives.

The objective of this research was to study the factors that could be used to promote Green IT adoption in Sri Lankan banking sector. After critically reviewing related literature, four effective factors were identified to promote Green IT adoption, which are Awareness, Stakeholder Pressure, Administration and Technology adoption. A conceptual framework was developed using above factors and a questionnaire was developed to collect data. Employees of IT Divisions of Lanka Clear and three banks were selected for data collection. Online survey was carried out among employees of selected organizations through e-mails to validate the proposed conceptual framework.

The data analysis concluded that Administration ($r=0.677$) and Technology adoption ($r=0.673$) have a Strong Positive Relationship while Awareness and Stakeholder Pressure ($r=0.557$) are having a Positive Moderate Relationship with Green IT adoption. Administration had the highest and Stakeholder Pressure had the lowest correlation values with Green IT adoption.

Key words: Green IT, Technology Adoption, Green IT Readiness

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An empirical study of domestic electricity demand in Sri Lanka

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The domestic electricity consumption in Sri Lanka shows a healthy growth in last 15 years in line with the expansion in Sri Lankan economy. It shows rapid increment after the end of civil war than the years before 2009. It is vital therefore to evaluate the factors effecting to the domestic electricity consumption of the country and to study dynamic interactions of them. The Objectives of this study are fit an Autoregressive Integrated Moving Average (ARIMA) model to compile a forecast for future domestic electricity demand for Sri Lanka and explore the dynamic interactions between domestic electricity consumption and several factors such as unit electricity cost, Gross Domestic Production (GDP), average temperature in Sri Lanka based on a Vector Error Correction model (VECM).

Forecasts derived from ARIMA model is good for short term predictions since it is solely depend on the volatility of the data against time. VECM provides more comprehensive estimates incorporating the other factors than the ARIMA model.

From 1997 to 2013 quarterly data are used for this study. It is found that ARIMA(3,2,0) model forecast the value with less than 5% of Mean Average Percentage Error(MAPE). Further it is noted that VECM with lag 3 shows GDP as the most affected variable to the domestic electricity demand with less than 5% MAPE.

Keywords: Domestic Electricity Demand, ARIMA Model, VECM, Time Series Analysis

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An Evaluation on Factors Influencing Venom Yield in Spectacled Cobra (*Naja naja*) in Sri Lanka

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Snake venom contains medically important toxic proteins. Proteroglyphous snakes of the family Elapidae: *Naja naja* is the only recognized species of cobra in Sri Lanka and is responsible for a considerable number of envenomation and deaths due to snake bites. The dose of antivenin depends upon the amount of venom inflicted by the snake and the kinetics of venom distribution in the whole body. Although several studies have been conducted regarding this subject, the amount of venom ejecting per bite is still under investigation.

The current study investigated whether the body size, sex and other morphological characteristics of *N. naja* have any influence on venom yield when milked manually. For milking, small-sterilized beakers that are tightly covered with parafilm layers were used. The head of each milking snake was held and venom was extracted to the prepared beakers by applying a gentle pressure to the venom glands. After that, the volume of wet venom of each snake was measured using graduated pipets and these volumes were used for statistical analysis. *N. naja*

The average wet venom volume in 40 adult cobra (mean total length 1698 ± 161 mm; mean body weight 1466 ± 287 g) ranges from 200-1500 μ l (mean 485.15 ± 178.9 μ l) and 10 juvenile snakes (mean total length 632 ± 95 mm and body weight 420 ± 93 g) were 15-70 μ l.

The venom yield positive correlated with the length and body weight of the snakes. Even though males hold slightly high volume of venom than females, this volume difference is not significant. In summary, we found that the venom yield is more correlated to the body size and total length than the sex and other morphological characters of snakes. Further studies are necessary to find out whether venom yield differs due to geographic variations or other related ecological factors.

Key Words: Venom Yield, Spectacled Cobra (Naja naja)

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Analyzing utility of waiting lines: a case study

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Queuing systems play a major role in most of commercial activities. Queues may occur due to lack of resources and hence queueing analysis depicts great importance to maintain balance between the available resources and the outside demands. Banks deal with waiting lines in their daily routine due to slow service, inappropriate number of servers, customers' varying requirements and etc. This study is concentrated on the utility of existing queueing system of a state bank in Kelaniya division.

Formerly a survey was carried out to know whether the customers are satisfied with the existing queueing system. The results of the survey highlighted that the customers of the bank are not satisfied about the queueing system in the bank and however they are satisfied about the overall service provided. Therefore, it is important to analyze the utility of the existing queueing system.

The current queueing system of the study is acting as a single channel waiting line system. Number of arrivals per minute and number of departures after getting service per minute was recorded for main 3 counters and total data set consist of 489 records. The data showed Poisson arrivals and exponential service times for the counters. The scenario was analyzed using queueing theory approaches with M/ M/ 1 queueing models regardless of customers' queueing behaviors and service requirements. The utilization waiting time in each queue, and the average number of customers waiting in the queue were found in the study. The findings intended that, two waiting lines out of three lines considered in the study were very busy and the third queue was the effective line. But the effective queue was also time consuming. i.e. the customers who ever joins the waiting line would have to wait nearly 13 minutes in the queue and 15 minutes in the system implying that the existing queueing system is not appropriate to handle the congestion occur in the bank for monetary transactions.

Key words: Single channel waiting line system, M/ M/ 1 queueing models, Customers' queueing behaviors, Queueing system

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Antibacterial activity of extract of leaves of *Atalantia ceylanica* (Yakinaran)

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Antibacterial activity of leaves of *Atalantia ceylanica* was tested qualitatively against 05 bacterial strains with the modified plate method at Gampaha Wickramarachchi Ayurveda Institute. The steam of boiled leaves and extract are used by certain villagers as a traditional treatment for healing respiratory ailments such as influenza. Even though natural flora may be effective in curing health defects, scientific studies on subject is limited. Thus the study was arranged to fill the gap for certain extent to harness natural resources effectively in health. So as the study was aimed to investigate the antibacterial properties of *Atlanta* leaves. The plates, prepared with the watery extract of boiled leaves, which comprised of neat concentration of raw leaf materials and Mueller-Hinton agar were inoculated with laboratory stored standard bacterial strains including *Pseudomonas aeruginosa*, *Streptococcus pneumonia*, *Escherichia coli*, *Staphylococcus aureus* and Methicillin resistant *Staphylococcus aureus* separately, which can cause respiratory as well as gastro- intestinal symptoms. For the control test, distilled water was used to make plates instead of watery leaf extract. Even after the duplicated experiment, no strain was found to be inhibited by the leaf materials, which indicated that the neat concentration of raw chemical compound of particular leaves have no inhibitory action on tested strains. As the respiratory infection is not only caused by bacteria but also by viruses, perhaps phytochemicals might have possessed antiviral as well as antibacterial properties on organisms other than the tested strains. Occasionally the chemicals of the particular plant leaves might have possessed certain anti-inflammatory features to control respiratory symptoms. Nevertheless it was clear that the chemical compounds of the distillation of leaves of *Atalantia ceylanica* had no significant inhibitory effect on the growth of tested strains. The same experiment was carried out early for the steam of particular leaf and the results were found to be the same.

Key words: Atalantia ceylanica, Traditional usage, Distillation, Antibacterial effect

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Antifeedant and antifungal activity of heartwood extracts of tea cultivars against *Glyptotermes dilatatus* Bugnion and Popoff and *Fusarium* sp.

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The low country live wood termite, *Glyptotermes dilatatus* is an economically important insect pest of low grown tea. The termite colony initiated by a pair of alates in rotted tea stumps move to the heartwood by making feeding galleries. They disperse wood rot fungi while feeding on heart wood of tea bush. The damage symptoms vary with the type of cultivar. Objective of the present study is to study the chemical constituents in susceptible and resistant cultivars.

Extracts of the debarked healthy stems of tea cultivars, TRI 2023 & TRI 4042 (susceptible) and TRI 2027 & TRI 4049 (resistant) were evaluated for the antifeedant and antifungal activities against *G. dilatatus* and *Fusarium* sp. which is common in the termite body, termite galleries and rotted tea stems using no choice feeding bioassay and antifungal assay respectively. Extract of TRI 2027 obtained using CHCl₃ showed a higher antifeedant activity (P<0.05, LSD) against *G. dilatatus* than that of TRI 2023, TRI 4042 or TRI 4049. The highest antifungal activity was observed in the extracts of both resistant cultivars (TRI 2027, TRI 4049) than that of susceptible cultivars (P<0.05, Tukeys mean separation test).

Fractionation of stem extract of TRI 2027 indicated that caffeine is one of the major bioactive compounds that showing antifeedant and antifungal activities. Antifeedant and antifungal activities were detected at 160 mg/ mL and 0.8 mg/ mL concentrations respectively. Mean caffeine contents of heartwood of resistant and susceptible cultivars were quantified using colorimetric method. Results revealed that the caffeine content of resistant cultivars TRI 2027 and TRI 4049 (0.52±0.26, 0.34± 0.07 mg/g) were greater (t=3.28,df= 14, P=0.0055) than that of the susceptible cultivars, TRI 2023 and TRI 4042 (0.21±0.08, 0.22±0.01 mg/g) resulting a strong positive correlation between caffeine content and antifeedant and antifungal activities of the extracts of heartwood of tea cultivars. Hence caffeine is proven to be potential biochemical parameter to evaluate resistance of tea cultivars against *G. dilatatus* and *Fusarium* sp.

Key words: Glyptotermes dilatatus, antifeedant activity, antifungal activity, resistance

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Antioxidant active novel secondary metabolite from endolichenic fungus, *Penicillium citrinum*, inhabiting the lichen, *Parmotrema sp.* available in Sri Lanka.

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Secondary metabolites of fungi have become an important point of study in the search for novel biologically active small molecules. Although many secondary metabolites are not involved directly in the growth or reproduction of the fungus, it is believed that they play key roles in regulation of vital metabolic activities in an organism. It has been reported that many fungal secondary metabolites exhibit wide range of biological activities with diverse novel chemical structures which can be developed as new pharmaceutical drugs or agrochemicals. Today, there is a great demand for new natural sources of novel bioactive secondary metabolites. Recently, endolichenic fungi (ELF) that live asymptotically within the thalli of lichens have been identified as a rich source of bioactive compounds. One of the ongoing research program carried out in University of Kelaniya is isolation and identification of novel bioactive metabolites of endolichenic fungi available in Sri Lankan lichen species. The objective of the present study was isolation and identification of secondary metabolites in the endolichenic fungus, *Penicillium citrinum* isolated from the lichen *Parmotrema sp.* In this research *P. citrinum* was cultured in 50 large potato dextrose agar (PDA) plates and incubated at room temperature for two weeks. The secondary metabolites were extracted into ethyl acetate and evaluated using DPPH antioxidant assay. They were further separated using bioassay guided fractionation in order to isolate active pure compounds. The results of this study led to the isolation of a novel bioactive compound, 5'-acetyl-3,5,7'-trimethoxy-3'H-spiro [cyclohexa [2,4]diene-1,1'-isobenzofuran]-3',6-dione with moderate antioxidant activity ($IC_{50} = 159.6 \pm 22.3 \mu\text{g/mL}$). This compound was identified using ¹H, ¹³C NMR, 2D NMR and MS data. Biosynthesis of this compound was evaluated and it was revealed that it is originated from a heptaketide via condensation, reduction, oxidation, decarboxylation and methoxylation to form the final polyketide product.

Key words: Antioxidant activity, endolichenic fungi, secondary metabolites, Penicillium citrinu

Antioxidant activities of phenolic extracts of guava leaf, coconut cake, rice bran and sesame cake obtained using subcritical water and ethanol:water (70:30 v/v)

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Subcritical water (SCW) extraction is an environmentally friendly technique that has been used to extract phenolic substances. For the present study, guava leaves (GL), coconut cake (CC), rice bran (RB) and sesame cake (SC) were selected as the natural sources of antioxidants. The study aims at the comparison of the efficiency of the extraction of phenolic substances from these natural sources by SCW and ethanol:water, 70:30 v/v (EW). Phenolic substances from the above sources were extracted under high pressure (20 bar) and at 200 °C (SCW200) and with the EW. Total phenolic contents (TPC) of the extracts were determined using Folin-Ciocalteu method. Antioxidant activities of SCW200 and EW extracts and butylated hydroxy toluene (BHT) were evaluated using 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging assay. Phenolic antioxidants were subjected to a heat treatment at 180 °C for 2 hours and their effect on the oxidative stability of stripped sunflower oil was determined by evaluating the induction time (IT) using the Rancimat apparatus. Results of the TPC and Rancimat test are given in Table 1. In DPPH assay EW extracts exhibited higher inhibition percentages than their respective SCW200 extracts and BHT in the phenolic concentrations of 10, 15, 20, 25 and 30 µg/mL.

Table 1: TPC and IT of phenolic antioxidant extracts

Phenolic extract	TPC (g GAE/kg)		IT (h) at 100 µg of phenolic antioxidant/g of stripped oil	
	SCW200	EW	SCW200	EW
Guava leaf	66.36±3.18	68.83±3.74	2.21±0.12	2.63±0.07
Coconut cake	0.73±0.03	0.78±0.03	2.72±0.11	2.80±0.11
Rice bran	3.75±0.12	4.14±0.46	2.48±0.03	2.78±0.04
Sesame cake	1.83±0.06	2.11±0.29	2.67±0.04	2.72±0.08

The results indicate that both EW and SCW200 can be effectively use to extract phenolic substances from the studied plant materials. Even though TPC yield of CC is the smallest it shows the highest efficiency in protecting oils against oxidation.

Financial assistance provided by NRC 12-012 is highly appreciated.

Keywords: Antioxidant activities, Rancimat test, Subcritical water extraction

Application of Witten-Bell Discounting Techniques for Smoothing in Part of Speech Tagging Algorithm for Sinhala Language

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The sparse data problem is a major issue in part of speech tagging process with standard N-gram models. Since systems are trained from corpus and any particular corpus is finite, some perfectly acceptable N-grams are bound to be missing from the corpus. This is becoming a bigger problem when calculating transition probability and Maximum Likelihood Estimation (MLE) in a Hidden Markov Model based tagging approach.

But there are some techniques we can use to assign a non-zero probability to these “zero probability bigrams”. This task of re-evaluating some of these zero-probabilities of N-grams and assigning them non-zero values, is called smoothing.

Witten-Bell discounting is one technique that can be used to handle sparse data problem in N-gram algorithms that was introduced by Witten and Bell in 1991. Witten-Bell discounting is based on intuition about zero-frequency events. An unseen word is one that has not seen yet, so Zero-frequency N-gram is one that has not happened yet, when it does happen, it will be the first time we see this new N-gram. So the probability of seeing a zero-frequency N-gram can be modelled by the probability of seeing an N-gram for the first time. So the concept of Witten-Bell is the use of count of things we have seen once to help estimate the count of things never seen. Using this technique, we eliminated getting zero probability values for transition probability and Maximum Likelihood Estimation for sequence of words (N-gram) that is seen first time in our algorithm.

So with applying smoothing techniques in tagging algorithm for unseen word sequences, zero probability transitions can be eliminated and can assign non-zero probabilities, which enables tagging sentences with word sequences that is seen first time. The accuracy of the tagger was improved by eliminating zero probability occurrences. Hence, our tagger shows 91% of overall accuracy, with a considerable improvement compared with the previous work carried out for Sinhala language, since previous results have shown an accuracy around 60%.

Key words: Natural Language Processing, Part of Speech tagging, Witten-Bell discounting

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Assessing toxicity of selected textile industry effluents reaching Kelani River using a plant based bioassay

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Textile industry effluents that are discharged in high volumes into inland waters may contain complex mixtures of toxic substances that could pose health impacts to biota inhabiting receiving waters. Conventional effluent quality assessments such as physico-chemical characterization may not be adequate to evaluate their biological effects. In the present study, potential toxicity of selected textile industry effluents discharged into Kelani River were assessed by a plant based bioassay using *Allium cepa* (onion) as the test organism. Effluents were collected from the discharging points of two textile industries in three sampling occasions covering mostly dry periods. Onion bulbs were exposed to the effluents under undiluted and diluted (1:8) conditions using aged tap water as the dilution media. Toxicity endpoints were root growth, mitotic index, occurrence of chromosomal aberrations and nuclear abnormalities. *A. cepa* root tip cells exposed to undiluted effluents from both industries caused significant ($p < 0.05$) root growth inhibition, mitotic depression compared to that of the controls along with a significant ($p < 0.05$) induction in the occurrence of condensed nuclei at each sampling occasion indicating cytotoxic effects. Moreover, undiluted effluents significantly ($p < 0.05$) induced chromosomal abnormalities with further induction in micronuclei in the root tip cells indicating genotoxicity. Exposure of onion bulbs to the 1:8 diluted effluents also showed significant alterations of toxicity end points depending on the effluent type and sampling occasion. The results revealed that 1:8 dilution was not adequate to eliminate the cytotoxicity/genotoxicity induced by the effluents completely. Physico-chemical characterization of the effluents showed that heavy metal levels generally comply with the national tolerance limits for effluent discharge into surface waters. However, color measurements and chemical oxygen demand levels did not comply with the tolerance limits in most of the cases indicating that highly oxidizable organics including textile dyes might have contributed to the observed toxicity. Present study showed the necessity of incorporating bioassays into effluent monitoring programs for more realistic effluent quality assessments, considering ecosystem and public health. This study was funded by the National Research Council research grant 11-11 and National Science Foundation equipment grant RG/2011/EQ/16.

Key words: Textile industry effluents, toxicity, bioassay

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Bioactive compounds and in-vitro antioxidant potential of mango (*Mangifera indica* L.) flesh, peel and seed.

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Natural antioxidant compounds from flesh, peel and seed of fruits have gained increasing attention in the scientific community. Synthetic antioxidants cause the side effects such as cancer and cardiovascular diseases. The antioxidants from natural sources are the only alternative to synthetic antioxidant. The main objective of this study was to evaluate the potential efficacy of mango peel and seed kernel as an antioxidant. In the present study three mango varieties 'Willard', 'Karuthacolomban' and 'Vellaicolomban' were collected from Jaffna district during April to July, 2015. Ethyl acetate extracts of flesh, peel and seed kernel of three mango varieties were studied for the total phenolic content (TPC) and total flavonoid content (TFC) using Folin-Ciocalteu method and aluminium chloride colorimetric assay respectively. A study of *in vitro* antioxidant activities were also studied using different assays, which include such DPPH radical scavenging assay, Ferric ion reducing power assay (FRAP), Nitric oxide scavenging assay (NO[•]) and ABTS radical scavenging assay (ABTS^{•+}). The results revealed that peel of Willard showed the highest TPC (275.61±5.24 mg GAE /g extract) and flesh of Vellaicolomban showed the highest TFC (479.80±15.30 mg QE/g extract). The DPPH radical scavenging activity results revealed that the ethyl acetate extract of Karuthacolomban seed kernel (IC₅₀-7.7±0.4 µg/mL) showed a higher radical scavenging activity than that of the standard, ascorbic acid (IC₅₀-11.0±0.4 µg/mL). Peel obtained from Willard and seed kernel obtained from Karuthacolomban showed the highest antioxidant activity in FRAP assay. The NO[•] assay results indicated that seed kernel of Karuthacolomban (IC₅₀-60.6±3.5 µg/mL) showed significantly higher scavenging activity than other eight extracts, but it showed lower activity than, ascorbic acid (IC₅₀-22.3±1.6 µg/mL). The ABTS^{•+} assay indicates that seed kernel of Karuthacolomban (IC₅₀-46.4±1.9 µg/mL) showed higher radical scavenging activity than that of the standard, Trolox (IC₅₀-136.6± 5.2 µg/mL). Finding of the present investigation showed that the mango peel and seed kernel contained more polyphenols and exhibited good antioxidant activity than that of flesh.

Key words: Mango pulp, Mango peel, Mango seed kernel, Antioxidant activity, Phenolic content, Flavonoids content.

Bio-Chemical Evaluation of Selected Sri Lankan Tea (*Camellia sinensis* L.) Cultivars and Accessions for Production of Green Tea.

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Two major types of tea, “green tea” and “black tea” are produced from the young shoots of *Camellia sinensis* L. employing different processing methods. Sri Lanka traditionally produces black tea and the existing cultivars are more suitable for black tea production. However, due to the increased demand for green tea in certain countries, it could be economically advantageous for some Sri Lankan factories to produce green tea for niche markets. Therefore, this study was conducted to evaluate the potential of using selected Sri Lankan tea cultivars and accessions for the production of green tea.

Tender shoots (two leaves and the bud) from 35 cultivars/accessions from St. Coombs Estate, Tea Research Institute of Sri Lanka, Talawakelle were steamed and dried to obtain green tea samples. Total polyphenol, catechin, free amino acid and caffeine content were determined by UV-vis spectrophotometric methods. Crude fiber content was determined according to ISO 5498. Three Chinese green tea samples were used as the controls.

Crude fiber content was found to be < 16.5 %. Total polyphenol and catechin were found to be in the range of 9.55-26.19 % and 7.91-20.07 % respectively, while free amino acids and caffeine were found in the range of 0.83-5.31 % and 3.98-7.60 % respectively. According to the correlation matrix of different bio-chemical parameters, positive correlation was identified between catechin and total polyphenol content. Besides total polyphenol content had a significant negative correlation with amino acid content. Principal Component Analysis (PCA) revealed that, total polyphenols, amino acids and catechins are the main contributing characters. Based on the first three PCs, analyzed tea samples clustered into three main groups at an average distance of about 1.00. The group I comprised of fourteen cultivars/accessions. Eight cultivars/accessions were included in group II whereas group three represented sixteen cultivars/accessions. Comparatively high amino acid content (1.72-5.06%), low total polyphenol (9.55-18.30%) and caffeine (4.08-5.80%) of cultivars/accessions in group II (CY 9, TRI 62/5, WHMOR, TRI 4079, PLLG 2 and DN) warrants them to be considered as potential cultivars/accessions for green tea production.

Keywords: Camellia sinensis L., green tea, tea cultivars, tea accessions

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Catalytic decarboxylation of rubber seed oil to produce hydrocarbons

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The rising of fuel prices and the contribution of fossil fuels towards global warming have been major global concerns during past few decades. Interest in renewable fuels has increased due to the above mentioned problems. Green Diesel (GD) has emerged as a promising solution to these issues. The objective of this research is to derive hydrocarbons from rubber seed oil. Rubber seeds are considered as a waste in our country. Therefore, oil of rubber seeds is a potential fatty acid source for GD production.

Rubber seed oil was extracted using soxhlet method. Only a part of the extracted oil was hydrolyzed. Decarboxylation of both hydrolyzed, and non hydrolyzed oil were carried out in a especially designed glass apparatus with sodalime and alumina mixtures. The proportions of sodalime and alumina were varied in the catalyst mixture. Five non-hydrolyzed and three hydrolyzed samples were decarboxylated. The products were analyzed by GC-MS.

The hydrocarbons in the range of C-11 to C-16 carbon chain length have been produced during the decarboxylation process. However, unsaturated hydrocarbons were observed, as rubber seed oil mainly consist of unsaturated fatty acids such as linoleic acid. Percentage peak area can be taken as an indicator to quantitatively compare the hydrocarbons. The highest percentage peak are of 57.61% was shown by 6-Dodecene, which was present in the non- hydrolyzed sample where 25% alumina was added. Apart from that, 5-Undecene (19.90% peak area) and Tridecane(12.03% peak area) showed their presence in the non-hydrolyzed decarboxylated samples.

Hydrolyzed oil samples showed the presence of Tetradecane (4.46%), 2-Tetradecene (6.48%), 1-Hexadecene (0.41%), 5-Tetradecene(2.39%), Pentadecane (7.90%) and 6-Tetradecyne(0.30%) which were not present in non-hydrolyzed samples.

It can be seen that with the addition of alumina to the catalyst system, that there is an increase in the percentage peak area. These experiments indicate that decarboxylation of rubber seed oil in the presence of sodalime and alumina can be employed to produce hydrocarbons in the diesel range which is of C-10 to C-28 chain length. Future studies will be conducted to optimize pressure and temperature conditions based on these findings.

Key words: Catalytic, Decarboxylation, Hydrocarbons, Rubber seeds

Challenges faced by Health Right Practices in Tea Plantation Sector Community of Sri Lanka

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Good health is the best award of the life and it is vital for the development of a country. According to UDHR (1948), WHO (1946), ICCSCR (1966), ICCPR (1966), every human being is equally entitled to right to health without any discrimination, and member states should take the necessary steps to function these rights. Sri Lanka maintains free health service for every citizen without any discrimination. However, the estate sector community in Sri Lanka is faced many health problems, and they are still under the poor health facilities in Sri Lanka. Hence it is worthy to examine the challenges faced by health rights practices in the estate sector community of Sri Lanka. The study used both primary & secondary data. Primary data were based on the questionnaires, interviews and simple observation from randomly selected 50 families in Keeragala estate in Kuruwita division of Rathnapura district. Also 10 responsible officers from the Ministry of health and the Kuruwita division were used as key informants for qualitative data.

The study found that, poor living conditions, low income level and low literacy level have negatively affected for the health rights of the people and for inadequate shelter and sanitary facilities. Husbandry, toilets, wells are concentrated within 3-4m distance for each other. The public participation at the medical clinics is low. The public health service delivery process is extremely poor. The government and the land owners have paid a poor attention on the establishment of the health facilities in the area. There is no any NGO project or state funded project functioned in the area for the development of health facilities of the people. The awareness of the health habits and the health rights of the community is very low. Thus, the health rights of the tea plantation sector community are neglected and concerned efforts are needed to be made to ensure health right practitioners in the area.

Key Words: Health Rights, Health Right Practices, Tea Plantation Sector community, Challenges

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Characterization of trace metal concentration (Al, Fe, Mn, Cu, Zn, Pb) of bulk precipitation in kandy district, Sri Lanka

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The atmospheric precipitation is an important phenomenon in which pollutants are scavenged from the atmosphere. Wet deposition accounts for rain, fog and snow, while dry deposition is the accumulation and fallout of aerosol particles and gases without dissolution of water. It is very important to have baseline data on the chemical composition of the atmosphere to take regulatory measures to control atmospheric pollution in Sri Lanka. The main objective of this study was thus to determine selected trace metals (Al, Fe, Mn, Cu, Zn, Pb) in bulk precipitation samples collected weekly in three sampling locations, namely the University of Peradeniya premises, Polgolla and Kandy for a period of one year from August 2013 to July 2014. Trace metals were determined in filtered and preserved rainwater (bulk) samples using Graphite Furnace Atomic Absorption Spectrometer, and volume weighted mean values of selected trace metals were subsequently calculated. Kandy municipality showed the highest contamination and followed the sequence of Al > Zn > Fe > Mn > Cu > Pb and volume weighted mean concentrations of above sequence are 53.6 $\mu\text{g L}^{-1}$, 38.0 $\mu\text{g L}^{-1}$, 5.8 $\mu\text{g L}^{-1}$, 5.4 $\mu\text{g L}^{-1}$, 4.2 $\mu\text{g L}^{-1}$, <2.0 $\mu\text{g L}^{-1}$. Polgolla dam site also recorded some trace metal contamination following the sequence, Al > Zn > Fe > Cu > Mn > Pb and volume weighted mean concentrations of above sequence are 51.5 $\mu\text{g L}^{-1}$, 40.5 $\mu\text{g L}^{-1}$, 4.8 $\mu\text{g L}^{-1}$, 2.4 $\mu\text{g L}^{-1}$, 1.5 $\mu\text{g L}^{-1}$, <2.0 $\mu\text{g L}^{-1}$. Despite less industrialization and less traffic congestion, Peradeniya University premises also showed some extent of atmospheric trace metal contamination following sequence of Al > Zn > Cu > Fe > Mn > Pb and volume weighted mean concentrations of above sequence are 46.1 $\mu\text{g L}^{-1}$, 44.3 $\mu\text{g L}^{-1}$, 2.6 $\mu\text{g L}^{-1}$, 1.9 $\mu\text{g L}^{-1}$, 1.7 $\mu\text{g L}^{-1}$, <2.0 $\mu\text{g L}^{-1}$. Principal component analysis (PCA), used to predict possible sources for the above trace metal contaminants, indicates that Mn, Cu and Zn are originated mainly from anthropogenic activities, such as fossil fuel combustion and burning municipal waste. Al and Fe are mainly originated from natural sources as those metals are the major components of alumino-silicate based earth crust.

Key words: Aerosol particles, Atmospheric precipitation, Bulk precipitation, Trace metals

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Conceal Communication via MP3

D.M.S.Eranga¹, K.G.H.D.Weerasinghe²

Hiding messages for various security purposes have become highly interesting topic on now a day. Encryption provides the ability of data hiding. With development of the technology, people tend to figure out a technique which is not only capable in hiding a message, but also capable in hiding the existence of the message. The current study is conducted in order to hide a text message in an MP3 file. The major aim of this research is the ability to hide text message in MP3 and retrieve the hidden text message. The research is introduced a new system called StegMP3 v1.0. Steganography of mp3 is more challenging due to wider dynamic range of the Human Auditory System (HAS) rather than Human Visual System. Research objectives are secrecy, verification, truthfulness, assure unapparent perceptual transparency of mp3 file (cover object) and the object covering secret messages and send/receive mp3 files. Least Significant Bit (LSB) is the core tactic which changes the last bit from a byte. This system doesn't change the mp3 file and doesn't increase the size of the carrier file. Thus, the existence of the message cannot be detected. MP3 consists of packets and each packet includes header and data. The system uses unique approach to guarantee the original quality of mp3 and secrecy of the message. However, the impartiality of dispatch before and after is assured. The system facilitates to enjoy the music while processing. The system is evaluated by conducting a survey among IT professionals. The program quality has been accepted 84.37% and 89.59% accepted that the program like to be available in the internet. This program is suitable for safe and careful preservation of sensitive records. The StegMP3 v1.0 is a free, simple and quality assured software tool new to the area. In future, the system should be upgraded with cryptographic involvement and increase the message capacity support with text files rather than text.

Key words: Steganography, HAS (Human Auditory System)

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Connecting the Interdisciplinary Dots with Water

Sam Hammer

Water is a global resource issue that requires an interdisciplinary approach. In this presentation I will report on two examples of how I teach about water in undergraduate settings. At Boston University (USA) my students engage with water through intimate, hands-on laboratories and through urban landscape exploration. Here in Sri Lanka (Rajarata University) I am guiding student water research through an encounter with village tanks, where we are trying to gain new perspectives on the behaviour of water in the tank ecosystem. In both settings, careful observation, documentation, and reflection are the methodologies we use. The goal is to connect intangible characteristics of water with a larger scientific narrative. But our engagement with water can also connect to non-scientific endeavors in the humanities and social sciences.

**Courtship behaviour of Smith's tiger spider *Poecilotheria smithi*
(Arachnida: Theraphosidae) in the wild**

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Kusuminda²

The reproductive behaviour of Mygalomorph spiders in the wild is scarce, due to their nocturnal and cryptic habits. The current study describes and interprets the courtship behaviour exhibited by Smith's tiger spider *Poecilotheria smithi* in the wild. Behavioural observations were conducted in the area of Ranamure (GPS coordinates are 7°24'0" N and 80°48'0" E) in the Knuckles region of Sri Lanka. Observations began at 19.45 hours and continued until the behaviour was over. The same mating couple was observed throughout the observation period, which lasted for four consecutive days from 10th November 2013 to 14th November 2013. We selected scan sampling as the sampling rule and instantaneous sampling as the recording rule, mating behaviour was observed following Martin and Bateson 1993. Behavioural transitions were calculated in one of the two ways depending on whether the transition occurred only once during the reproduction. An ethogram of 20 behavioural acts was compiled. The courtship behaviour (pedipalp drumming, leg drumming, push-up and shaking) was divided into three distinct patterns; orientation, persuasion and copulation. Adult males perform courtship movements, when they locate a female's burrow probably in order to avoid female aggression. Females displayed typical behaviour of a burrowing tarantula, making rapid bouts of tapping vigorously with the first pair of legs and palps. The mating position observed was typical of mygalomorphs, in which the female raises her body up and opens her fangs, while the male uses the legs to hold the female up and finally begin a series of attempts at palpal insertion. The dorsal flexion was observed during mating and the number of successful matings in open arenas suggests that copulation would take place outside the burrow. Males appear to use chemical and/or tactile cues from the females silk around the burrow during short-range searching behaviour. We did not observe sexual cannibalism during the courtship behaviour of these spiders.

Key words: Mygalomorph spiders, *Poecilotheria smithi*, Courtship behaviour, instantaneous sampling

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Cytotoxic effects of α -Eleostearic acid-rich fat extracted from seeds of bitter melon (*Momordica charantia*) on Vero 76 cells

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Some seed fat sources contain conjugated trienoic fatty acids in high proportions (30- 80%). Previous studies have revealed that these fatty acids possess potent anticarcinogenic properties. The bitter melon (*Momordica charantia*) seed fat contains a conjugated trienoic fatty acid named α - Eleostearic acid (α - ESA; 18:3;9c,11t,13t). The reported proportion of α -ESA in the fatty acid profile ranges from 50% - 60% and it is consistent with our study giving a result of 50.56%. Thus, the current *in vitro* study was conducted to evaluate the cytotoxicity of α -ESA-rich fat using a continuous cell line named Vero 76. It has been previously suggested that Vero cells can be used for preliminary studies in cancer research *in vitro*.

For the *in vitro* evaluation, fatty acid methyl esters (FAMES) of bitter melon seed fat (BMO) was prepared and was incorporated into the cell line with RPMI 1640 medium (10 μ l FAME + 90 μ l RPMI medium). As a control, FAMES of coconut fat (*Cocos nucifera*; CO) was incorporated (10 μ l FAME + 90 μ l RPMI medium) into growing cells. Furthermore, in the positive control, Absolute Ethanol (100 % Ethanol) was added (100 μ l) and in the negative control 100 μ l of RPMI medium was added. MTT assay was conducted after 24 hours incubation. Finally Absorbance (A) was measured at 570 nm.

The results revealed that Vero cells treated with FAMES of BMO have exhibited a significantly less cell viability (A = 0.2138) as compared with cells treated with FAMES of CO (A = 0.8475). The viability of cells treated with FAMES of CO was comparable with the negative control (A = 1.027). Interestingly, the viability of cells treated with FAMES of BMO was comparable with the positive control (A = 0.2443) indicating a potent cytotoxicity on these cells.

BMO exhibited a significant cytotoxic action compared with CO. As Vero cells have been recognized a suitable cell culture for preliminary cytotoxicity studies, these results pave the way for further studies on this cytotoxic conjugated fatty acid using cancer cell lines *in vitro*.

Key words: Bitter melon, α - Eleostearic acid, Vero 76, Cytotoxicity

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Deep Unsupervised Pre-trained Neural Network for Human Gesture Recognition

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Recognition of visual patterns for real world applications is a complex process that involves many issues. Varying and complex backgrounds, bad lighting environments, person independent gesture recognition and the computational costs are some of the issues in this process. Since human gestures are perceived through vision, it is a subject of visual pattern recognition. Hand gesture recognition is of higher interest for Human-Computer Interaction (HCI), due to its widespread applications in virtual reality, sign language recognition, robot control, medical industry and computer games. The main goal of the research is to propose a computationally efficient and accurate pattern recognition algorithm for HCI.

Deep learning attempts to model high-level abstractions (features) in data and build strong feature space for the recognition task. Neural network with five hidden layers was used and each layer can learn features at a different level of abstraction. However, training neural networks with multiple hidden layers was difficult in practice. At first, each hidden layer individually was trained in an unsupervised fashion using autoencoders. After training the first autoencoder, second autoencoder was trained in a similar way. The main difference is that features that were generated from the first autoencoder are used as the training data in the second autoencoder thus decreased the size of the hidden representation, so that the second autoencoder learns an even smaller representation of the input data. The original vectors in the training data had 101376 dimensions. After passing them through the first encoder, this was reduced to 10000 dimensions. After using the second encoder, this was reduced to 1000 dimensions. Likewise at the end, final layer was trained to classify 50 dimensional vectors into different image classes. The result for the deep neural network is improved by performing Backpropagation on the whole multilayer network.

Finally, we observed that average test classification error for traditional neural network with supervised learning algorithm is 3.6% while the error for pre-trained deep neural network is 1.4%. We can conclude that unsupervised pre-training adds robustness to a deep architecture and it proposes computationally efficient and accurate pattern recognition algorithms for HCI.

Key words: Deep neural network, Auto-encoders, Unsupervised pre-training, Hand gesture recognition.

Determination of current lead concentration in human blood by human biomonitoring in selected Sri Lankan populations

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Lead contamination of human blood from occupational origin and vehicle emission is a cause for concern because of its potential accumulation ability in the environment and in living organisms leading to long term toxic effects. This study was aimed to assess the concentration of lead in blood of different groups exposed to different occupational conditions. Groups were selected based on the hypothesis that concentration of lead in blood may vary according to the type of exposure. Blood lead levels in students, drivers and workers of University of Kelaniya, motorcyclists and fuel station attendants in Kiribathgoda city area were studied. All other groups except fuel station attendants expose to vehicle smoke during their occupation and travelling. But fuel station attendants expose to vehicle smoke and gasoline vapors excessively during their duration of occupation than others. Some of the general population selected from a rural area who are least exposed to vehicle emissions and any occupational condition were used as the control group. A questionnaire was given to each volunteer that participated in the study to obtain the type and duration of exposure to check whether there is any correlation with lead level in blood to that parameters. Venous blood was obtained by a trained nurse and concentration of lead was determined by graphite furnace atomic absorption spectrophotometer after a microwave digestion. All analyzed groups except control group contained elevated level of lead in blood than the WHO recommended maximum level. Statistical analysis were carried out to identify the correlation between elevated level of lead in blood with the type of the exposure and the duration of the exposure. Statistical analysis revealed that lead level in blood is significantly different in each study group. Blood lead levels are found to be in, students ($102.58 \pm 18.50 \mu\text{g L}^{-1}$), drivers ($208.50 \pm 86.70 \mu\text{g L}^{-1}$) and workers ($124.18 \pm 27.05 \mu\text{g L}^{-1}$) of University of Kelaniya, motorcyclists ($115.34 \pm 15.30 \mu\text{g L}^{-1}$) and fuel station attendants ($220.00 \pm 65.90 \mu\text{g L}^{-1}$). It was also observed that individuals who smoke cigarettes had extremely high levels of lead in blood with respect to non-smokers within a same study group.

Key words: Blood lead level, Lead, Occupational exposure, Graphite furnace atomic absorption spectrophotometry.

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Determination of Nutrient composition of domestic and commercially available coconut milk preparations

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This study evaluated the nutrient composition of coconut milk (CM) prepared by blending (pressing) the grated coconut (*Cocos nucifera* L.) kernel and commercially available powdered or liquid CM. Nine randomly selected coconuts from ordinary tall coconut trees, three each from three regions in Kurunegala district were analyzed using standard methods. First extract (FE) of CM was prepared by blending a mixture of water and grated coconut kernel 1:1 (w:w) in a household blender. The strained pulp was used similarly, to prepare the Second Extract (SE). Commercial CM was prepared according to instructions on the packages. The results are given in Table 1.

Table 1. Nutrient composition of coconut milk

	Blended CM (BCM)		Liquid CM (LCM)	Powdered CM (PCM)
	FE ^a	SE ^a	FE ^a	FE ^a
Total sugars (mg/mL)	54.3±6.6	17.4±7.5	6.7±2.2	9.4±2.8
Reducing sugars (mg/mL)	22.2±6.1	4.9±2.2	1.9±0.8	6.9±0.1 to 19.1±0.5
Proteins (mg/mL)	54±19	32±14	26±7	38±5 to 68±6
Polyphenols/ (mg/mL)	1.72±0.34	0.89±0.11	1.17±0.14 to 0.38±0.02	1.98±0.17
Total fat (w/w %)	4.6±2.4	2.0±0.9	5.6 ± 0.4 to 16.7 ± 0.2	13.7±0.6 to 20.1±0.2
Iodine value (w/w %)	0.03 ± 0.00	0.02 ± 0.01	0.02 ± 0.01	0.01

^a -Each data point represents the mean of nine replicates ± standard deviation.

FE of BCM contained higher protein, polyphenol, sugar and fat levels compared to SE. Compared to commercial counterparts total fat content in FE of BCM is significantly ($p \leq 0.05$) lower while sugar, protein, polyphenol contents are significantly ($p \leq 0.05$) higher. However, the iodine values of all the samples were not significantly different indicating that the oil quality of the samples are unaffected by the method of preparation. Based on the results the domestic coconut milk preparations contain a lower fat content and higher protein and polyphenol composition, when compared to the commercial coconut milk preparations.

Keywords: Coconut milk, Commercial coconut milk, nutritional composition.

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Determining Critical Factors of Consumers' Adoption of Internet Banking

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Banks in Sri Lanka have been at the forefront in the deployment of ICT based products and services. With Electronic banking, financial institutions began to exploit new approaches to their business while delivering their customers a wide range of value added products and services in aligning with the product delivery mix with the new technology. One of the major E-banking channels is the Internet Banking (IB). Though there is a growth in transaction volume of IB in Sri Lanka over the years, yet it takes less than 10% compared with total transaction volume. This implies that still the IB services have not been used as much as customers could or should have used them.

There are few studies have been conducted to determine the critical factors affecting the customer adoption of IB. The objective of this research is to identify the different banking customer segments on the demographic and socio-economic characteristics and then to identify the deterrent and appealing factors governing in these segments that affect IB adoption. The paper describes IB-readiness as the state of being fully prepared to engage in IB, and it is argued that both the potential banking customers, banks and their web technology must be equally ready before IB-adoption can occur. Eight factors such as Technology readiness, Banking service usage, Access and availability of resources, Risk and adaptability, User friendly IB services, Security, Perceived convenience and Cost are considered to evaluate their effects towards IB adoption through a survey.

This study presents the results of the initial test of the conceptual model of IB adoption with a sample of retail banking customers who belong to different demographic segments in Sri Lanka. Technology readiness has a statistically significant difference among different age groups and Risk and adaptability, Access and availability of resources and Security shows a statistical significance impact towards IB adoption. The above findings provide information on consumer behavior in IB and this enables the banks to identify the motivating and the deterrent factors in different customer segments. This would enable the banks to discover the deterrent factors in different segments and to address them by introducing new strategies and promotional programs to increase the IB usage.

Key words: Internet banking, customer segments, appealing factors, deterrent factors

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Development and Validation of e-Content on “Thermodynamics” to Instruct Engineering Physics to Undergraduates

Shamitha Pathiratne¹

The present era is an era of academic globalization. Engineers of today and tomorrow are expected to be far more ingenious and innovative. Now a day with the tremendous developments in technology, possibilities are emerging to provide technical edification in an innovative way to meet ecumenical demands. With the avail of incipient kind of scholastic programmers, we can provide multidimensional and multi-disciplinary edifying experiences to the learners e-Contents are the puissant implement of inculcation. e-Content is the latest method of tutoring, which has magnetized more attention of educationists.

Hence there is less possibility of incorporating technology to edify Engineering Subjects. And additionally there is no quality e-Contents were developed for Engineering Physics Subject. Hence the main objectives of this study is to A) To develop an e-Content on “Thermodynamics”. B) To validate the developed e-Content. C) To ascertain the efficacy of developed e-Content in edifying “Thermodynamics” to first year Engineering Undergraduates.

A pre-test, post-test two group experimental design was adopted. Sample of 60 First Year Engineering Undergraduates were exposed to different treatments such as edifying through e-Content and conventional method of edifying. The study was additionally fixated on ascertaining the consequential distinctions between control and experimental group of First Year Engineering Undergraduates in their academic achievement while learning “Thermodynamics” with reference to gain scores. The achievement scores were analyzed utilizing different statistical techniques. It was found that the experimental group Undergraduates who were edified through e-Content material had better achievement scores than the control group Undergraduates in learning “Thermodynamics”. In conclusion, this present study pellucidly denotes that the developed e- content on “Thermodynamics” is more efficacious and as recommendation can verbally express that Chalk and verbalize method of edifying Engineering Physics Subject should be reduced. More incipient instructional technologies utilizing e-Contents shall be introduced in Engineering Faculties.

Key words: e-Content, Engineering Physics, Thermodynamics, Undergraduates

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Development of a new biofertilizer system using *Gliricidia* plants grown in Sri Lanka

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Use of biomass fertilizers appears to be the most appropriate way of adding nutrients into the soil which is environmental friendly and suitable for local conditions. Among the biomass fertilizer sources, *Gliricidia* has been identified as the most suitable nitrogen fixing legume. Some experiments that have been carried out showed that the *Gliricidia* with high N content and low lignin level is more suitable as N source. An investigation carried out to determine the nitrogen (N), phosphorous (P), and potassium (K) contents of different parts of *gliricidia* plant and to develop a slow-release nitrogen biomass fertilizer systems using *gliricidia* plant. Four types of *gliricidia* plants (Provenance Trail Series of *Gliricidiasepium* 17/84 Oxford Forestry Institute (OFI), *Gliricidiasepium* 25/84 OFI, *Gliricidiasepium* 25/84 OFI and *Gliricidiasepium* (Local species)) were obtained from Rathmalagara estate, Madampe in Coconut Research Institute (CRI) in Sri Lanka.

According to the experimental results the level of nitrogen in different parts of the *gliricidia* plants varied from 27860 mg kg⁻¹ to 5222 mg kg⁻¹. It was found that phosphorous and potassium content in *gliricidia* plant varied from 892.2 mg kg⁻¹ to 1258.2 mg kg⁻¹ and from 208.6 mg kg⁻¹ to 8678.5 mg kg⁻¹ respectively. Biofertilizers were prepared from *gliricidia* bark chips after treated with a saturated solution of urea (CH₄N₂O). The morphology and physiochemical parameters of treated *gliricidia* bark chips were investigated. Experimental result indicated that after *gliricidia* bark chips were treated with urea, total nitrogen content in the bark increased by more than 200% giving the value as 36700 mg kg⁻¹. The initial nitrogen content in the bark was 17878 mg kg⁻¹. This study also evaluated the release pattern of nitrogen from impregnated *gliricidia* wood chips in a soil matrix and found that nitrogen was released in a slow-release pattern. The above findings confirm and gave promising results to further develop urea incorporated *gliricidia* bark particles as a slow-release new biomass fertilizer system.

Key words: biofertilizers, slow-release fertilizers, gliricidia, urea, nitrogen

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Development of Environmentally Friendly Cellulose Containing Packaging Products From Waste Materials

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Polymers are highly multipurpose class of materials which are found in all areas of engineering from daily products to biomedical devices. Polymers are increasingly being used as a substitute for conventional material systems. The applications of polymeric materials and their composites are still growing rapidly due to different properties. They are inexpensive, durable and versatile and used for an endless variety of applications. However, polymers have a significant environmental impact after usage. Total management of polymer waste needs complementary combinations of incineration, recycling and biodegradation. Biodegradation is the environmentally friendly waste management method. Biodegradable plastics undergo degradation from the action of naturally occurring microorganisms such as bacteria, fungi and algae. The aim of this research is to develop biodegradable polymer composite materials using cellulose and Low Density Polyethylene. Cellulose is the most structural component in herbal cells and tissues. Cellulose is a natural long chain polymer that plays an important role in human food cycle indirectly. This polymer has versatile uses in many industries such as veterinary foods, wood and paper, fibers and clothes, cosmetic and pharmaceutical. Sugarcane bagasse is abundantly available agricultural waste world-wide which is being used in different applications due to its relatively high availability of cellulose. Approximately 41% of cellulose was extracted during this research from sugarcane bagasse. Laboratory type mixing equipment was used to mix LDPE and cellulose. Mixing parameters were 130⁰C mixing temperature with 10 minutes mixing time. Different types of compositions were prepared by changing cellulose concentration. Hydraulic press was used to prepare the samples to evaluate their biodegradability. Soil burial test was performed to analyze the degradability of the developed product for 12 weeks. Tensile strength, elongation at break, water absorption and weight loss were performed before and after the soil burial test. All samples containing cellulose showed a significant weight loss compared to pure LDPE during the soil burial test. Weight loss increased with increase of in cellulose concentration and maximum weight loss was observed in 6 %w/w. cellulose containing sample. Maximum weight loss was 3.4% after 12 weeks. Pure LDPE didn't show any water absorption but all samples containing cellulose displayed the water absorption qualities during the soil burial test. Cellulose 6%w/w. sample showed 45% tensile strength reduction after the 12 weeks during soil burial test. Tensile strength of all cellulose containing samples showed a significant reduction with increase in cellulose concentration during the soil burial testing period. Property of elongation at break also showed same type of degradation pattern for developed product during the testing period. According to all these data obtained it clearly showed the degradation of the cellulose – LDPE based product during the 12 weeks. This cellulose containing degradable product can be used as an environment friendly packaging material to create a clean environment.

Key words: Cellulose, Sugarcane bagasse, Biodegradable

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Different isolates of *Bacillus subtilis* from gastrointestinal tract of wild caught black tiger shrimp, *Penaeus monodon* to improve a locally produced probiotic/bioaugmenter for controlling pathogenic *Vibrio* in Sri Lankan shrimp culture systems

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Bacillus species are the major probiotic bacteria used in both hatchery and grow-out systems of tropical shrimp culture industry to control pathogenic *Vibrio* species. Our previous works have confirmed that the use of a locally produced probiotic/bioaugmenter containing a locally isolated strain of *Bacillus subtilis* could contribute significantly in producing healthy post larvae of *Penaeus monodon* and in obtaining a profitable harvest from grow-out ponds compared to systems that did not use the product. Therefore, present study was planned to isolate different isolates of *Bacillus subtilis* to improve that probiotic or to formulate a new probiotic with improved performances. Samples of apparently healthy black tiger shrimp, *P. monodon* residing in estuaries in the North Western Province were transported to the laboratory. Gastrointestinal tract samples of the shrimp were first subjected to heat treatment (to kill non-spore forming bacteria) and isolation, purification and characterization of different isolates of *Bacillus subtilis* were carried out following standard microbiological procedures. Isolates were identified as different strains of *Bacillus subtilis* by biochemical tests in API 20E and API 50 CHB test kits (bioMerieux, France).

Out of the nine different isolates of *B. subtilis*, only three displayed high growth rate while tolerating wide range of salinity (5gL^{-1} to 35gL^{-1}) and pH (6 to 10). Antagonistic properties of those three isolates of *B. subtilis* on five species of pathogenic *Vibrio* of cultured shrimp in Sri Lanka (isolated and identified in our previous work) were investigated. The diameter of inhibitory zones produced by the new isolates of *B. subtilis* on the pathogenic *Vibrio* species ranged from 2 to 4 mm; they could be used to improve the locally produced probiotic/bioaugmenter. The selected three isolates of *B. subtilis* have been sent for the confirmation of strain type by DNA analysis.

Key words: Penaeus monodon, pathogenic Vibrio, Bacillus subtilis

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Effect of alum in combination with vacuum packaging in extending the shelf life of Embul banana

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Crown rot disease is the major post harvest disease in Embul banana causing severe post harvest loss both in terms of quality and quantity. Due to hazardous effects of fungicides, use of eco-friendly methods of controlling crown rot disease are being investigated throughout the world. In this study, efficacy of alum (sodium aluminium sulphate) in combination with vacuum packaging was investigated in extending the shelf life of Embul banana at cold temperature.

Approximately 85-day mature Embul banana hands were washed with 1% alum (w/v) solution and control was washed only in water. Treated and control fruits were packed in Low density polyethylene bags, air inside bags were removed using a vacuum and placed in fibre board cartons and stored in a cold room at 12-14 °C. Each treatment comprised 8 replicate boxes each with 5 hands. In-package gases were analysed on initial day and every seven days thereafter up to 28 days of storage. Physicochemical and sensory properties and crown rot disease severity (CRS) were determined in ripened fruits after each storage period. Medium (50 kg) and large scale (100 kg) test marketing trials were conducted at fruit outlets in Dambulla and Kiribathgoda, Sri Lanka by providing treated Embul banana samples to consumers and staff to obtain feedback on the quality of treated banana.

Crown rot disease severity was low (CRS index < 1) in alum treated samples compared to control after 28 days. Physicochemical and sensory properties were unaffected by alum+vacuum packaging treatment. Oxygen within packages was maintained between 3.3 - 4.4 % while CO₂ % varied between 3.9 - 4.0 %. In medium and large scale test marketing trials, treatment controlled crown rot disease to a fair extent and obtained higher score values from the customers and staff of fruit outlets for the sensory properties compared to control. Therefore, this eco-friendly treatment method could be adopted for effective control of crown rot disease and to extend shelf life of Embul banana up to one month.

Key words: Crown rot, Embul banana, vacuum packaging

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Effect of microbial exudates on breaking dormancy of soil microbial seed bank

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Soil ecosystem deteriorates due to natural and anthropogenic disturbances, which interrupt the ecosystem functions and its sustainability. As a consequence of this disturbed soil system, plant and microbial seed bank may become dormant contributing to low below-and above-ground diversity. The present experiment was conducted to observe the effect of microbial exudates on rejuvenating a deteriorated soil system by activating the dormant microbial seed bank. Bacterial and fungal-bacterial biofilm exudates were used as treatments with a control (sterilized distilled water). Microbial exudates were applied to 2mm sieved soil in trays and incubated for 7 days at room temperature. Three replicates per treatment were arranged according to completely randomized design. Bacterial colony counts were taken from all treatments after 24 hours and 7 days of incubation. The functional groups present in microbial exudates and emerged bacterial colonies were analysed using Fourier Transform Infrared (FTIR) spectroscopy. Data were analyzed using ANOVA by Minitab (version 16). Significantly higher number of bacterial colonies was observed in soils applied with biofilm exudates than soils applied with bacterial exudates and the control. Cluster analysis demonstrated bacterial cultures emerged from soils applied with biofilm exudates were clustered separately from those emerged from other treatments, implying that it was a different group of bacteria. The results suggested that there is a possibility of using microbial biofilms to break the dormant microbial seed bank to enhance microbial diversity in soil.

Key words: Fungal - bacterial biofilms, soil microbial seed bank, soil ecosystem, microbial exudates

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Effect of usage of mobile phone in trouser pocket on quality of semen parameters

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A cross sectional study was carried out in the fertility clinic of Gampaha Wickramarachchi Ayurveda hospital during the period of August 2014 to August 2015 to find out the effect of carrying mobile phone in trouser pocket on the quality of semen parameters. Mobile phone has become an essential instrument among the lives of modern society. It assists to globalize the world. The disadvantage is the emitting of harmful rays when it's in use or switch on mode. However this bad effect basically depends on the way of handling the item. In vitro studies in foreign countries have shown that mobile rays have a negative effect on sperm motility. However, local studies on subject are handful in amount. Thus the current study was set up to trace the effect of switch on mobile phones kept in trousers on semen parameters. Every male who visited the clinic for fertility issue was personally evaluated on consent to gather the behavioral data. The semen of each was also collected (after 3 days absent from ejaculation) and analyzed separately. Out of 81 subjects 51 were used to carry the phone in trouser pocket as a custody. However when comparing the average semen parameters of them such as volume, sperm count, sperm motility and morphology with the same of non-users, it was clear that though there was a slight reduction of mentioned parameters in the test group it was statically not significant ($P>0.05$). Thus according to the final result the usage of mobile phone in trouser has a less effect on the quality of semen parameters. However this could be due to non-continuous usage of switch on mobile phone in the particular site. More over its better to keep the phone out of the site of testis when concerning male fertility.

Key words: Mobile phone, Trouser pocket, Semen parameters, Male fertility

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Electrodeposition of (n-type) cadmium zinc sulphide thin film semiconductors for photovoltaic applications

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Electrodeposition of thin film semiconductors have drawn increasing attention in the fabrication of solar cells due to its low cost and easy fabrication methodologies applicable in large scale production, compared to that of conventional Si solar cells. Among different types of semiconductor thin films, cadmium zinc sulphide ($\text{Cd}_x\text{Zn}_{(1-x)}\text{S}$) thin film is one of the promising wide band-gap window materials which can be used in fabrication of hetero-junction solar cells.

Electrodeposition of ($\text{Cd}_x\text{Zn}_{(1-x)}\text{S}$) on fluorine doped tin oxide conducting glass working electrode was carried out using aqueous solution of electro-purified salts of CdSO_4 , ZnSO_4 and $\text{Na}_2\text{S}_2\text{O}_3$. An EG & G model 636 bipotentiostat comprising of a graphite counter electrode and Ag/AgCl reference electrode were used to control the potential of the working electrode. Taking into account of the information obtained from cyclic voltammograms for the separate precursor salts, the three voltages of -0.9, -1.0 and -1.1 V were selected for electrodeposition. Thin films were deposited at each of the above voltages, using solutions with various proportions of Cd and Zn but the same concentration of $\text{Na}_2\text{S}_2\text{O}_3$ for three deposition time periods of 1, 2 and 3 hours. The pH and temperatures for all solutions used for depositions were maintained at 2.5 and 27 °C respectively. Photo-electrochemical cell measurements in 0.1 mol dm^{-3} $\text{Na}_2\text{S}_2\text{O}_3$ electrolyte and UV-visible absorption spectroscopy were used to measure the open circuit voltages (V_{oc}), short circuit current densities (J_{sc}) and band gaps of the electrodeposited thin films.

The thin films with the highest observed photovoltaic activity of average V_{oc} of - 0.156 V, J_{sc} of $2.6 \mu\text{A cm}^{-2}$ and a band gap in the range of 2.05 to 2.28 eV were produced from electro-deposition solutions containing CdSO_4 , ZnSO_4 and $\text{Na}_2\text{S}_2\text{O}_3$ with 0.06, 0.04 and 0.10 mol dm^{-3} respectively when deposited over a one hour period.

Keywords: electrodeposition, $\text{Cd}_x\text{Zn}_{(1-x)}\text{S}$, n-type conductivity, band gap

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Electro-deposition of Cadmium Zinc Sulphide at High Cadmium Ion Concentration, Low Zinc Ion Concentration, High Temperature and Low pH

K.A.D.M.S.Sarathchandra, D.S.M. De Silva¹ and K.A.S. Pathiratne

Thin films are nanoscale materials which are widely used for solar cells and other optoelectronic devices. $\text{Cd}_{(1-x)}\text{Zn}_x\text{S}$ (cadmium zinc sulphide) is formed by incorporating zinc ions to CdS (cadmium sulphide). $\text{Cd}_{(1-x)}\text{Zn}_x\text{S}$ is a n-type semiconductor material which has a wider band gap than that of n-type CdS. Therefore, $\text{Cd}_{(1-x)}\text{Zn}_x\text{S}$ can be used as a window material when application required low absorption of light and n-type semiconductor properties. $\text{Cd}_{(1-x)}\text{Zn}_x\text{S}$ has been electro-deposited by varying cadmium ion concentration, zinc ion concentration, pH, deposition temperature and deposition time. Results reported here were based on the depositions conditions; 0.1 mol dm^{-3} cadmium ion concentration, 0.01 mol dm^{-3} zinc concentration, 2.45 - 2.50 pH and $50 \text{ }^\circ\text{C}$ deposition temperature. Electro-deposition experiments were carried out by Gamry “series G 300” potentiostat while, working electrode was fluorine doped tin oxide/glass substrate, reference electrode was Ag/AgCl electrode and counter electrode was a semi-spherical graphite rod. The deposition voltage was identified from the cyclic voltammograms and shapes of the deposition current vs time plots. Electro-deposition reported in here was carried out at under-deposition voltages. The best values for electro-deposition parameters; voltage, pH, temperature and time were identified by observing their influence on the band gap values of the thin films deposited and the open circuit voltages of photo-electrochemical cell consisting of 0.1 mol dm^{-3} sodium thiosulphate electrolyte and the thin film semiconductor. A band gap range of 2.5 eV – 2.6 eV was obtained for $\text{Cd}_{(1-x)}\text{Zn}_x\text{S}$ layer which is higher than the band gap of CdS. The open circuit voltage varied from -48 mV to -190 mV during optimization of voltage, pH, temperature and time. An X-ray diffraction spectrum has shown that $\text{Cd}_{(1-x)}\text{Zn}_x\text{S}$ layer has a single hexagonal crystal phase. The crystal parameter, $a = 4.1264 \text{ \AA}$ and it was lower than the standard CdS ($a = 4.1364 \text{ \AA}$). The results indicate that $\text{Cd}_{(1-x)}\text{Zn}_x\text{S}$ thin films can be produced under the given conditions as a window layer for thin film solar cells in order to harvest more light and hence to improve the efficiency.

Keywords: cadmium zinc sulphide, electro-deposition, thin films, solar cells.

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Eliminating the storage wastage of CCTV cameras by motion detection

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Despite the ever increasing capacity of data storage mediums, there is a wider appeal for studies on efficient storage management to avoid the wastage of capacity due to unwanted data volumes. In line with the demand for research on capacity optimization, this study focuses on the efficient use of storage space by avoiding unwanted data with respect to the storage management in Closed-circuit television (CCTV) camera systems. Therefore, deviating from the common high end hardware solutions such as sensors, study introduces a software solution to store the video only when a motion occurs.

Comparison of video frames using image processing is used as the basic method to identify motion. The grayscale version of the each frame and the calculated absolute difference between the video frame and base image are used to identify the motion. A threshold filter is employed to eliminate the unnecessary effects due to noise. The value chosen for the threshold is dependent on the noisiness of the environment as it affects the sensitivity. The threshold value can be optimized statistically using a cost function based on the errors. In this study, a threshold values between 10 and 15 were found to be suitable for the laboratory environment which is considered as low noise indoor environment. Finally, an edge filter can be applied to identify the moving object in the video.

The study has utilized the advantages of gradual update (blending the base image with current video frame in a lower rate than actual changing rate of the current frame) of base image rather than using a static image to compare with the live image.

In a commercial perspective, this study focuses on a mechanism that can be used to transfer the live feed of CCTV cameras at a very high speed to an Android mobile phone which is connected to the same network.

According to the test results, the solution proposed in this study saves about 50% of storage space of CCTV cameras in an environment with limited motions while providing a very fast live streaming of the video footage. This would be an ideal storage solution for domestic CCTV camera systems which generally deal with limited motions.

Keywords: CCTV, Storage Management, Live Streaming, Motion Detection.

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Evaluation of Essential Oil content and composition of *Ocimum* Species in Five Districts of Sri Lanka

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The genus *Ocimum* is a member of the Lamiaceae family which contains about 150 species of herbs and shrubs. Majority of species of genus *Ocimum* are essential oil bearing plants. Several species belonging to genus *Ocimum* are distributed in Sri Lanka. In the present study attempts were made to investigate the essential oils of populations distributed in 5 districts of Sri Lanka. Survey was conducted Anuradhapura, Matale, Gampaha, Kurunegala and Puttalam districts and 9 different samples (APMI 3, APMI 4, MLLD 2, MLLD 5, MLLD 6, KGYP 2, KGYP 5, GPLG 5, and PTWW 2) were collected, Species were authenticated by comparing with National Herbarium. These samples were air dried for 3 days and cut into small pieces (2cm) and hydro distilled using Clevenger apparatus. Essential oil composition was determined using GC-MS analysis. Cluster analysis for essential oil composition was carried out by using SPSS version 14. Oil content varied from 0.4% to 1.6% depending on the locality and the population. The highest oil content was reported from Loluwagoda (GPLG 5) in Gampaha district while the lowest was from Yaggapitiye, in Kurunegala district. Eugenol content varied from 1.45% (APMI 4) to 86.33% (GPLG 5). Methyl eugenol, Camphor, was only found in APMI 4 (85.64%) and APMI 3 (37.99%) respectively as the main component. Germacrene-d and Caryophyllene are common compounds of all the populations except APMI 3. Ocimine was found in 6 species except APMI 3, APMI 4, and MLLD 6. Thirty six compounds were identified from nine species. All populations were clustered into two on the basis of availability of different compounds using hierarchical cluster analysis. Cluster 1 consisted of 3 populations (MLLD 5, GPLG 5, KGYP 5) while cluster 2 consisted of 6 populations (MLLD 2, KGYP 2, PTWW 2, APMI 3, APMI 4, and MLLD 6). Information generated through the present study could be of vital importance for chemotaxonomy of *Ocimum* populations.

Key words: Ocimum, Lamiaceae, essential oil, GC-MS

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FEM analysis of backfilling sequences on the behaviour of gravity type retaining wall

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Gravity retaining walls derive their capacity to resist lateral movement through the dead weight of the wall. The design methodologies proposed by standards do not take into account the construction sequences that simulate the process by which the soil and retaining wall are brought together. However, in reality, at least during the backfilling process, the retaining wall undergoes many displacements that are not so far considered in the design. In this investigation, effect of construction sequences in the gravity retaining walls with different shapes is investigated with the help of finite element method. Two different construction sequences, namely the backfilling after wall construction and the backfilling parallel to wall construction, are compared for different wall shape models. Lateral displacement of the bottom and the top of the wall is plotted for each model and construction sequence with construction stages. Bearing pressure distribution, lateral earth pressure and failure wedge angle are summarized and compared with design values. Each wall showed different behaviours for each of the construction sequences. Back filling after wall construction minimizes the sliding failure and bearing pressure. Overturning failure could be reduced by backfilling parallel to wall construction. However, it was observed that, comparatively, backfilling after wall construction is effective than backfilling parallel to wall construction, suggesting that proper selection of construction method also may reduce negative effects on the wall stability.

Key words: Gravity retaining wall, construction sequence, numerical modelling, backfilling, lateral displacement

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Growth of CdS and CdTe thin film semiconductors and fabrication of CdS/CdTe solar cells

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Thin films of CdS and CdTe semiconductor materials were electrodeposited onto glass/fluorine doped tin oxide conducting glass surfaces using a potentiostat/galvanostat equipped with a three electrode cell. Aqueous electrolytic bath containing CdCl₂ and (NH₄)₂S₂O₃ was used for the electrodeposition of CdS thin films. CdTe thin films were electrodeposited onto glass/FTO/CdS substrates from aqueous solution having high concentrations of CdSO₄ and low concentrations of TeO₂ and CdCl₂. The glass/FTO/CdS/CdTe/Cu-Au solar cell devices were prepared by thermal evaporation of Cu and Au on CdTe surface.

CdS films grown were annealed at ~400 °C for 15 minutes in air and photo-electro chemical (PEC) cell measurements were performed to identify the electrical conductivity type. Both as-deposited and annealed CdS layers were identified as n-type in electrical conduction. CdS thin films were shown enhanced PEC responses upon heat treatment. The respective band gap values for as-deposited and heat treated CdS were 2.35±0.05 eV and 2.40±0.05 eV which were close to the band gap of bulk CdS. XRD analysis of as-deposited CdS layers revealed the presence of hexagonal CdS materials with the major peak arising from (002) plane.

Following the CdTe deposition on glass/FTO/CdS substrate, the surface of CdTe layers were coated with a 0.1% CdCl₂ solution and structures were annealed at ~400°C for 10 minutes in air. Band gaps for CdTe layers were found to be 1.45±0.02 eV for both as-deposited and annealed samples which exhibited the band gap of bulk CdTe. There was a little improvement in cubic (220) and (311) peaks of XRD spectra of annealed CdTe layers compared to the as-deposited material, but annealing exhibited a small reduction of cubic phase preferential orientation (111). SEM images showed that CdS and CdTe layers were fairly uniform. The fabricated solar cell devices showed the efficiency of 2.1% with V_{oc} ~330 mV, J_{sc}~20 mA cm⁻² and FF~33% under the illumination of air mass (AM) 1.5 conditions (100 mW/cm², 1 Sun).

Key words: Thin films, Semiconductors, Solar cells

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Hardware Implementation of a Hidden Markov Model Based, Speaker Independent, Continuous, Sinhala Speech Recognition System

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A speaker independent speech recognition system is built to recognize the continuous Sinhala speech sentences using the toolkit, HTK 3.4.1 based on the statistical approach, Hidden Markov Model (HMM). Mel Frequency Cepstral Coefficient (MFCC), Perceptual Linear Prediction (PLP) and Linear Predictive Coding (LPC) are considered as the feature extraction methods. The recognition performance is considered for number of feature parameters varied from 4 to 12, by adding energy coefficients, first and second derivatives of each coefficient, in order to find the optimal number of parameters for each feature extraction method. Three hundred Sinhala sentences were considered for recording in order to create the phonetically balanced dictionary. Data recordings were done with 50 males and 50 females and testing was performed by 25 speakers who had participated and had not participated for the training. The recognized sequence of words are the commands to automate home appliances such as light, television and radio etc., and this can help people with motor disabilities to operate equipment.

The speech recognition system was physically implemented to provide access from a PC or a laptop, based on Arduino UNO board (ATmega328 microcontroller). Arduino comes with a simple integrated development environment (IDE) and allows the programmer to write programs for Arduino in C language. The identified command is transferred to the Arduino UNO board through serial communication and the signal is transmitted using Radio Frequency (RF) to operate electrical home appliances from anywhere up to 150 meters using wireless transceiver modules (C1101) with operating frequency 433MHz. Software was developed to operate more than 18 home appliances, but in hardware implementation, only four are tested. Four Arduino UNO boards are used to implement the light and fan on/off control and the door and curtain angle control. On/off control is operated using relays to switch on and switch off. The door and curtain angle control are constructed by motor with the MOSFET transistors (IRFZ44N). Since a high recognition rate of 85% was achieved for MFCC with 7 feature parameters and adding energy coefficients, first and second derivatives in the software analysis of the previous studies, the same model was used to implement the hardware. A different grammar file is created in the language model of the software to achieve high recognition rate, by considering words and phrases that are only needed to operate the hardware.

Key words: Sinhala speech recognition, Hidden Markov Model, Operate electrical appliances, Microcontroller

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Higher order Markov chain approach in modeling Cricket Scores.

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The Markov chain models are applied in a wide range of topics such as physics, chemistry, medicine, music, game theory and sports. In this research work, higher order Markov chain model that accounts for scores of an innings of a limited-over cricket match (T20) which is based on the assumption that the runs scored and wicket occurred follow a higher order Markov chain. Therefore two models, first order and second order Markov chains are considered in this research. Parameter estimation is carried out using the data available online for T20 innings. Parameters were estimated for Sri Lanka and India teams considering fifteen T20 matches for each team between 15/06/2006 to 07/09/2014. The probabilities depend on the batsmen, the bowler, the number of wickets lost, the number of balls bowled and the innings. Simulated results give evidence to the validity of the model. Some statistical tests were used to investigate the significance of the results. The model may be used for forecasting purposes and find the effect when order of Markov chain increased. The model can be improved by taking into considerations the other factors that affect the scoring of an innings. For example, home-ground advantage, weather condition, pitch, team which they are playing against, batsman's performance, bowler's performance etc. And also the model can be extended to find the effect between the wicket occurring rate and scoring rate.

Key Words: Markov chain, Frist order, Second order

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Hydrochemical analysis and evaluation of groundwater quality in Rathupaswala area in Sri Lanka

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Water quality analysis is one of the most important aspects in groundwater studies. The physiochemical parameters of groundwater and soil play a significant role in classifying and assessing water quality. The groundwater quality is a function of natural processes as well as anthropogenic activities.

The objective of the present work is to ascertain the major ion chemistry of groundwater and soil in Rathupaswala area in Sri Lanka. Water and soil samples were collected from 12 drinking water wells between 7° 02' 25" to 7° 04' 06" North latitude and 80° 00' 043" to 80° 2' 08" East longitude in Rathupaswala area. Each drinking water well was subjected to four times analysis within four months for pH, specific conductance, COD, hardness, and metal ions including Al, Fe, Ca, Mg and Na. The observed physicochemical parameters of ground water were compared with World Health Organization Standards (WHO). According to the experimental results, all the ground water samples appeared colorless, clear and odorless. The observed pH values of all the water samples were ranged from 4.8 to 6.5. Aluminium content in the water samples was not in the detectable limits and the maximum iron content observed was 0.14 mg L⁻¹. Total magnesium and calcium contents were ranged from 4.9 to 29.3 as CaCO₃ mgL⁻¹. The majority water type in the study area was found to be Na-bicarbonate water type. Groundwater soil samples were analyzed for pH, specific conductance, cation exchange capacity organic matters, mineral phases, and metal ions including Al, Fe, Ca, Mg and Na. Groundwater samples in studied area do not exceed the WHO standards for drinking water parameters except pH value. The recommended pH value was also achieved by boiling process of the ground water. Experimental data revealed that the pH range of groundwater and soil does not greatly influence on the Al, Fe, Ca, Mg and Na content in drinking water in this area.

Key words: groundwater, water quality parameters, soil analysis, pH value, Rathupaswala area

ICT Skill Proficiency of Healthcare Professionals in Western Region of Sri Lanka

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E-health facilitate availability of information online for patients and doctors and reduction of paperwork, such as records and files, which swallow a large space of medical centers. Further, this help to improve the country's healthcare services and make them better and affordable. Healthcare staffs are change agents in healthcare sector. They are key drivers who play crucial role in ICT integration in healthcare.

The aim of this study is to examine the ICT proficiency of healthcare staff in western region of Sri Lanka. A sample of 100 healthcare staff was assessed for their ICT Proficiency using a Likert type questionnaire (Strongly Disagree (SD), disagree (D), Neutral (N), Agree (A), Strongly Agree (SA)). There were 60 females (60%) participants and 40 were male (40%). The average number of years of computer use was 8.73 years (SD=5.722). A list of hardware (i.e., desktop Computer, laptops, multimedia, digital cameras, printers, scanners, and Barcode/RFID reader) was provided to the participants for them to assess their level of proficiency. Most respondents can use hardware related to ICT (SA – 2%, A - 55.6%, N - 29.7%) but they have low maintenance proficiency (SD – 21%, D - 53.5%, N – 16.5%). Staffs reach to moderate proficiency in using office packages (SA – 23.6%, A - 57%, N – 18%) and web-based functions (SA – 6%, A – 36%, N – 55%). They depict low proficiency (SD – 96%) for System Analyst and Design, Software development skills, Networking Skills.

According to the result healthcare staff can work with ICT integrated systems. But they are not in position to maintain computerized system in networking environment. Most of staff do not have any idea about analysis / design/ development/configuration of computerized systems relevant to the healthcare. There is higher necessity of having either well train or well experience/qualified ICT staff for successfully integration of ICT in to the Healthcare sector.

Key words: eHealth, ICT skill proficiency, ICT for healthcare, IT for hospitals

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In Vitro Inhibitory Potentials of Alpha Amylase and Alpha Glucosidase in *Tricosanthes Dioica*, *Moringa Oleifera* And *Averrhoa Carambola*

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In recent times type 2 diabetes has become one of the major public health concern in both developing and developed countries. It is defined as an endocrine and metabolic disease defined by elevated blood glucose level (hyperglycemia). Current studies based on medicinal plants have revealed that phenolic and flavonoids compounds present in plants can inhibit key enzymes such as alpha glucosidase and alpha amylase and offer an effective strategy to control post prandial hyperglycaemia. Therefore the purpose of this study was to determine the inhibitory potential of alpha glucosidase and alpha amylase by *Tricosanthes dioica* (Padwal), *Moringaoleifera* (Murunga) and *Averrhoacarambola* (Kamaranga).

Leaves of Padwal, Murunga and fruits of Kamaranga were sliced, dried, powdered and refluxed with 75% ethanol and fractionated with ethyl acetate. 75% ethanol extract, ethyl acetate extract and aqueous layers were obtained. Each layer was tested for the total phenolic content and percentage reducing activity. IC₅₀ values of alpha amylase and alpha glucosidase inhibitions by the extracts were determined using several biochemical assays.

Among the three plants *T. dioica* 75% ethanol extract had the highest amount of phenolic content (50.88±4.90 mg/g) and the highest reducing power was in *A. carambola* 75% ethanol extract (710.91±15.62). The most plant extracts showed higher reducing power compared with standard BHT (317.27±19.10). In the determination of IC₅₀ values for alpha amylase, ethyl acetate layer of *A. carambola* (57.36 ± 16.51 µg/g) showed the lowest value and the highest IC₅₀ value was in *T. dioica* aqueous layer (1225.84±59.57 µg/g). The lowest IC₅₀ value for alpha glucosidase was observed in *M. oleifera* (279.84±35.51 ng/g) aqueous layer and the highest value was in the ethyl acetate extract of *T. dioica* (9.08×10⁵±1.11×10⁴ ng/g).

In the present study the selected plant materials had high phenolic contents and percentage reducing power. *A. carambola* ethyl acetate extract is most effective inhibitor for amylase and *M. oleifera* aqueous layer is effectual inhibitor for glucosidase in vitro among the three plants.

Key words: glucosidase, amylase, inhibitors

Increase the performance of apparel industry through the application of lean tools and techniques

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Lean manufacturing is an approach to identify and eliminate wastes through continuous improvement. Lean principles and techniques that drive organizations to continually add value to the product they deliver by enhancing process steps that are necessary, relevant, and valuable while eliminating those that fail to add value. Lean has been used in manufacturing for decades and has been associated with enhanced product quality and overall corporate success. The benefits of using lean manufacturing approach are evident in factories all over the world. With a view to achieve performance improvement, both developed and developing countries are applying lean. The apparel manufacturing industry in Sri Lanka faces many challenges as a result of low cost garment manufacturers worldwide, and which now seeks options and tools to stay in the competitive market. With this need in mind many apparel companies have looked at lean manufacturing as a valuable method to promote new strategic positioning.

There is no evidence in the literature in similar research where a framework is developed to identify the most appropriate lean tools or technique that could be used to minimize a particular waste. The purpose of this study is to identify the waste that is common in apparel industry in different departments and to map the most effective lean tools and techniques that are applicable to reduce the identified waste. This will enable to reduce waste, cost and time taken for each non value added activity and enable to stay competitive in the international market. A framework has been developed by mapping the significant waste in apparel industry with the most appropriate lean tools and techniques that has been proven effective in eliminating waste in order to improve the apparel manufacturing performance.

The study, first, undertook literature review in the area of lean manufacturing and developed extensive research questions. These questionnaires were given to 15 lean practitioners in selected leading apparel manufacturing companies in Sri Lanka. The collected data was analyzed and tested on several nonparametric tests using SPSS version 22.

Key words: apparel industry, lean tools and techniques, performance improvement, waste

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Information Technology Outsourcing in Mobile Telecommunication Industry in Sri Lanka

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The decision of Information Technology Outsourcing is considered to be the survival or failure factor in modern hyper competition environment. This is closely related with mobile telecommunication companies as Information Technology (IT) is considered to be the part and parcel of its industry. However, lack of initiatives to tackle IT operational efficacy through Information Technology Outsourcing has been under attention of both researches and practitioners. Nevertheless, eagerness to identify which factors influence a successful Information Technology Outsourcing decision has been remained untouched in academic literature in relation to Sri Lankan mobile telecommunication industry. Hence, the objective of this study was to identify the factors that influence Information Technology Outsourcing in mobile telecommunication companies of Sri Lanka.

With careful review literature, three main categories of influential factors were identified namely Strategic, Economical and Technological. A conceptual framework was developed using above three factors and three hypothesis were developed. Ninety seven professionals from three leading mobile telecommunication companies (Dialog Axiata, Mobitel Pvt Ltd, Etisalat) who represent top management, middle management and senior technical staff participated in this research. An online questionnaire was designed using Google Docs which was distributed among participants via email. Out of the responses 68% of effective responses were selected for data analysis using SPSS version 20. Spearman's correlation coefficient technique was used for hypothesis validation.

With the results, it is evident that there is a strong positive correlation between Information Technology Outsourcing, and economical factors (such as cost reduction and company growth) and strategic factors. Moreover, there is moderate strong correlation between technological factors and Information Technology Outsourcing. As a conclusion economic influential factors were highlighted as most influencing factors towards Information Technology Outsourcing decision.

Key words: Information Technology, Telecommunication Industry, Outsourcing

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Institutional robustness averts Hardin's tragedy of the commons in the community-based beach seine fisheries in Sri Lanka

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Small scale coastal fisheries accounts for nearly 40% of world fish catches and provide direct employment for more than 90% of the world fishers employed in capture fisheries. Subsequent recognition of the failures of centralized fisheries management led the governments to accept community-based management as an invaluable means to formulate fisheries management. Such traditional management practices exist in beach seine fisheries of Sri Lanka. Study ascertains and documents the rules and norms that are in general not formerly codified in writing, and evaluate empirically the compliance of elements of customary governance with Ostrom's modified design principles (MDP) for long enduring commons management systems. Eight beach seine fisher communities were studied using standard ethnographic methods, and evaluation of compliance with MDP was carried out by administering structured questionnaires. Fishing rights in contiguous sea were vested to the villagers who lived in the sea front, as a residential proximity right. Due to this tradition, the ownership of a beach seine and fishing rights came in three ways identified as: exclusive right, primary rights and secondary right. Sole authority for governing the commons was vested to community organization termed "madelsamithi", considered as the local administrative unit. Institution governing the commons addressed the excludability problem by defining fishing territory, eligibility rules and intercommunity access rule, while subtractability problem was addressed by gear rules, temporal allocation rules, first comer rules, fishing behaviour rules, conservation rules, and rules for distribution of benefits. Institutional architecture of beach seine fisher communities exhibited the high compliance with MDP. Out of the 11 MDP, fisher communities showed very high compliance with four MDP and high compliance with six MDP. Only one MDP had a lower level compliance. As empirical evaluation on architecture of customary institutions shows high compliance with MDP, beach seine fisher communities can be treated as those govern commons through self-governing institutions. Beach seining in southern Sri Lanka is, therefore an example for well-managed commons that relies on strong, locally crafted rules as well as evolved norms, where institutional and governance mechanisms have essentially averted the "tragedy of the commons". Study provides the starkness to the notion that local actors in tropical community-based marine resource systems overcome the tragedy of the commons through robust self-governing institutions.

Key words: common pool resources, coastal fisheries, sustainability, customary rules, fisheries governance, modified design principles

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Investigating the bioactive compounds of endolichenic fungus *Hypoxylon anthochroum* isolated from the lichen, *Pseudocyphellaria* sp.

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It has been reported that 11 endolichenic fungal strains were isolated from lichen, *Pseudocyphellaria* sp. Endolichenic fungi live asymptotically within the lichen thallus and known as a new source useful of bioactive secondary metabolites. Secondary metabolites in endolichenic fungi show distinct bioactivities including antimicrobial, anti-inflammatory, analgesic, antioxidant and cytotoxic activities. These bioactive compounds have potential importance in development of pharmaceutical drugs, nutraceuticals and agrochemicals. The present study was carried out to investigate antioxidant activities of secondary metabolites produced from *Hypoxylon anthochroum* inhabiting the lichen, *Pseudocyphellaria* sp. In this research, *H. anthochroum* was cultured in 50 large petridishes containing potato dextrose agar (PDA) medium and incubated at room temperature for seven days. After the incubation period, secondary metabolites were extracted into ethyl acetate in order to obtain crude extract. The crude extract was partitioned using solvents hexane, chloroform and 60% aqueous methanol. Antioxidant activities of three fractions were evaluated using micro plate DPPH assay. Since chloroform fraction showed the highest antioxidant activity (81.96 % Inhibition at 800 µg/mL) it was further subjected to silica gel column chromatography and preparative thin layer chromatography to isolate bioactive compounds. One UV active pure compound which has antioxidant activity (43.21 % Inhibition at 800 µg/mL) was isolated from chloroform fraction and its structure elucidation will be carried out using ¹H NMR, ¹³C NMR, and 2D NMR spectral data.

Key words: Endolichenic fungi, bioactivity, antioxidant activity, Hypoxylon anthochroum

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Isolation of bioactive secondary metabolites from the endolichenic fungi, *Neosartorya* sp. inhabiting the lichen *Parmotrema* sp. in Sri Lanka

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Natural products are a potential source of novel pharmaceutical agents. Therefore, isolation and identification of bioactive compounds from organisms adapted to various biotopes and unraveling their bioactivities in search for new pharmacophores has a mounting interest. Fungi are known to be prominent producers of useful metabolites. Endolichenic fungi (ELF) that occur asymptotically within the lichen thalli are one of the ecological groups of fungi. ELF in Sri Lanka remain almost unexplored as a source of useful bioactive compounds. The objective of this study is to isolate bioactive secondary metabolites from ELF *Neosartorya* sp. isolated from *Parmotrema* sp. that occur in Hakgala Botanical Garden. ELF *Neosartorya* sp. was cultivated on 48 PDA plates and incubated at room temperature. Secondary metabolites were extracted into ethyl acetate from 9 days old cultures. Antibacterial activity of the crude extract was evaluated against *Bacillus subtilis* (BS) and *Staphylococcus aureus* (SA) using agar well diffusion method. Standard antibiotic Azithromycin was used as the positive control and Dimethyl sulfoxide as the negative control. Since the crude extract showed antibacterial activity against both BS and SA, it was partitioned with hexane, chloroform (CHCl₃) and aqueous methanol. All three fractions showed activity against SA, with the CHCl₃ fraction having higher activity compared to the other two fractions. Chloroform and methanol fractions showed significant activity against BS, while CHCl₃ fraction showed activity comparable with Azithromycin. Chloroform fraction of *Neosartorya* sp. was further fractionated using bio-assay guided fractionation (silica gel column chromatography). Pure compounds were isolated using preparative TLC. One major pure compound was isolated from CHCl₃ fraction and the characterization still in progress.

Key words: antibacterial activity, endolichenic fungi, Neosartorya sp., bioactivity

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Microbiological study of ready-to-eat foods of vegetable origin

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Vegetable based foods have been incriminated as a major source of food borne diseases world over. The objective of this study too was to determine the microbiological quality of the vegetable based ready-to-eat products. There is a high possibility of spreading common food borne pathogens such as *Salmonella* spp and *Staphylococcus aureus* and *Escherichia coli* through ready-to-eat foods. Recent history of food borne outbreaks illustrates occurrence of food borne illness due to common food borne pathogens by consumption of ready-to-eat foods with vegetable origin. A total of 21 ready-to-eat foods of vegetable origin were analyzed in this study. Indicators of faecal origin; (*Escherichia coli*) and food borne pathogens; (*Salmonella* spp and *Staphylococcus aureus*) were the criteria tested for the evaluation of microbiological quality of vegetable based ready-to-eat foods. Examination of the foods revealed that the majority (16 out of 21; 76.2%) were of satisfactory or acceptable microbiological quality according to Public Health Laboratory Service microbiological guidelines, while 5 (23.8%) samples were of unsatisfactory microbiological quality. Unsatisfactory quality was due to *Escherichia coli* levels higher than 10^2 CFU/g and *Staphylococcus aureus* levels in between 10^2 - $<10^3$ CFU/g. *Salmonella* spp were not detected in any of the samples tested. Ready-to-eat foods can be contaminated with food borne pathogens during the production process. The presence of food borne pathogens in ready-to-eat foods can result in a range of human health problems as well as economic losses. Ensuring good quality raw materials, adequate lethality treatment, effective sanitation of both the equipment and processing environment and implementation of good hygiene practices are crucial in preventing contaminations of ready-to-eat foods.

Key words: Microbiological quality, Ready-to-eat foods, Vegetable origin, Food borne pathogens

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Modelling real world problems with Multivariate Distributions: An application to All Share Price Index and related financial indices

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Modelling real world scenarios using statistical distributions became an important research area nowadays. Many real world applications associate with more than one variable. Therefore, when modelling these problems, finding the most suitable multivariate distributions reveals vast interest among scholars. This study focuses on finding the multivariate distribution of All Share Price Index (ASPI) of Colombo stock exchange and related financial indices. Findings of this study will lead to improve the accuracy of stock market prediction models and hence important for many parties in the financial sector.

Analytical methods and Numerical methods can be identified in the literature which were used to find multivariate distributions. Analytical methods exhibit difficulties when the number of variables increases, as they involve heavy mathematical calculations. Numerical methods have been used by many scholars to find multivariate distributions and many were limited to combination of two or three variables.

Four related financial indices can be identified with respect to ASPI as Amex Oil Index, Amex Gold Index, World Cocoa Index and GSPC index of U.S.A. stock market. Daily data from 1st August 2007 to 31st July 2012 of above mentioned financial indices were considered for the study. As all marginal distributions of aforesaid financial indices are Scaled t distributions, multivariate Scaled t distribution was considered in the study. A local optimization method with Matlab 'fmincon' function and a global optimization method with DSO algorithm were used to solve the corresponding optimization problem that involves twenty one parameters related to five dimensions of the multivariate Scaled t distribution.

The results obtained for the maximum function values exhibit that the global optimization method provides substantially better estimates for the parameters of the multivariate Scaled t distribution than the local optimization method. The identified multivariate distribution of All Share Price Index and related financial indices is central, less peaked and has fat tails.

Key words: All Share Price Index (ASPI), multivariate distribution, local optimization, global optimization

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Molecular Phylogeography and Clinical manifestations of Russell's viper (*Daboia russelii*) in Sri Lanka

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The Russell's viper, *Daboia russelii* has a relict distribution over large areas of Indian Sub Continent, Taiwan and the Lesser Sunda islands. Russell's viper is distributed with varying densities and occurrence throughout many natural and modified habitats in Sri Lanka. Bite of this species is associated with a high incidence of morbidity and mortality in Sri Lanka. There is scanty of information available about Russell's viper in Sri Lanka. Thus, preliminary study was carried out using clinical data obtained from the twenty eight patients admitted due to Russell's viper bite in General Hospitals in the Gampaha District. Further, thirty five DNA samples were collected from the tail tip of specimens of the Russell's viper from Gampaha, Kandy, Rathnapura, Galle, Anuradhapura and Kurunagala districts for molecular phylogeny. Then fragment of mtDNA sequencing fragments of cytochrome b genes were amplified. PCR and products were subjected. DNA sequencing for molecular analysis using raxmlGUI software.

Results revealed that the clinical features following Russell's viper envenomation are follows; local swelling 86%, local necrosis 7%, coagulopathy 75%, neurotoxicity 32%, nephrotoxicity 14% and cardiac effects 3%. Mortality of Russell's viper bites are caused by complications like renal failure, neurotoxicity, respiratory failure, disseminated intravascular-coagulation, heart failure and other cardiotoxic effects.

Alignment of Sequences of Cytochrome-b gene by maximum likelihood analysis revealed that two strongly supported monophyletic clades corresponding to Sri Lanka and the Indian subcontinent. However, Sri Lankan Russell's viper was nested within the clade of Indian Russell's viper group. There was genetic divergence (2%) between the Indian clades and the Sri Lankan clade. However, these haplotypes do not show any geographically significant pattern. Thus, it could be suggested that Indian and Sri Lankan Russell's viper are genetically closely related and origin may be India or Sri Lanka. Further studies are being carried out on morphometric, molecular taxonomic and venomous differences in different geographic location within the Sri Lanka and Asian region.

Keywords: Cytochrome-b gene, mtDNA sequencing, envenomation

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New Bioactive poliketide from endolichenic fungus, *Curvularia trifolii*, inhabiting the lichen, *Usnea* sp. collected from Haggala Botanical Garden.

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Endolichenic fungi (ELF), which live in healthy tissues of lichens, are one of the promising producers of structurally diverse novel bioactive secondary metabolites. It has been reported that endolichenic fungi are rich sources for the discovery of new compounds with significant medicinal values and this was demonstrated by isolation and identification of new anticancer, antifungal, antibacterial and antioxidant agents from endolichenic fungal extracts. In Sri Lanka, research group of University of Kelaniya initiated a research program on ELF and have isolated few interesting bioactive poliketides from ELF of three lichen species available in Sri Lanka. They have shown great potential to be a source for novel bioactive natural products.

The objectives of this study were isolation and identification of bioactive compounds of the endolichenic fungus, *Curvularia trifolii* isolated from the lichen *Usnea* species. In a continuation of our chemical investigations in search of secondary metabolites of endolichenic fungi with medicinal value led to the isolation of few bioactive compounds. In this present study, *C. trifolii* was grown in large scale and incubated at room temperature for 10 days. The metabolites were extracted into ethyl acetate (EtOAc). Antibacterial, anticancer and insecticidal activities of the EtOAc extract were evaluated using in-vitro bioassays. The EtOAc extract was subjected to a silica gel column chromatography resulting, one major compound with high bioactivities. The isolated pure white crystalline compound was identified as 1,14-dihydroxy-6-methyl-6,7,8,9,10,10 α ,14,14 α -octahydro-1H-benzo[f][1]oxacyclododecin-4(13H)-one using ¹H, ¹³C NMR, 2D NMR and MS data. The compound was found to possess antibacterial activity against three test pathogens, anticancer activity at (NCIH-460), (MCF-7), (SF-268), (PC3M), and (MDA-MB-231) cell lines and insecticidal activity.

Key words: Anticancer activity, endolichenic fungi, antibacterial activity, Curvularia trifolii

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Observation of interface modification of electrodeposited p-Cu₂O thin films in an aqueous electrolyte

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Interface engineering via modification of semiconductor surfaces of junction devices is a powerful technique to improve the performance of devices. In addition, semiconductor material Cu₂O has recently gained a considerable attention as a low cost semiconductor material suitable for developing thin film solar cells, water splitting in photoelectrochemical cells and gas sensors. Indeed, the possibility of relative band edge shifts of Cu₂O with suitable interfacing materials will pave the way for interface engineering to improve the efficiency of those devices. In this study we have investigated this possibility of using electrodeposited p-type cuprous oxide thin films deposited using a lactate bath containing 3 M sodium lactate and 0.4 M CuSO₄ at various pH values. These Cu₂O films were used in a photoelectrochemical cell to form semiconductor/electrolyte junctions in a 0.1 M sodium acetate aqueous solution and then to measure the flat band potential variations with the pH of the Cu₂O film deposition baths. It was observed that pH value of the Cu₂O film deposition bath is very sensitive to the flat band potential. This result gives a direct evidence that the surface of Cu₂O film is modified at the Cu₂O/electrolyte interface producing a relative band edge shift yielding the observed flat band shifts. We observed a general trend of flat band potential shift of about 350 mV in the positive direction, as the pH of the deposition bath was changed from 7 to 12.5. The observed shift in the flat band potential in the positive direction is very useful for the water splitting reaction because the valence band edge of Cu₂O is shifted positively relative to the oxygen redox potential. Our observation of highest photoresponse for Cu₂O thin films prepared at pH 13.5 is a direct evidence for the positive shift of the band edges. The observation of the interface modification of Cu₂O in aqueous electrolyte may be further extended to other suitable interfaces for developing Cu₂O based junction devices.

Key words: Cuprous oxide, Electrodeposition, Interface engineering, flat band potential

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Optimization for Rock Phosphate Solubilization by Phosphate-Solubilizing Bacteria isolated from *Oryza Sativa* Rhizosphere

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Rock Phosphate (RP) is a cheap, phosphate-rich source but due to its lack of water solubility its use is limited in rice cultivation as a Phosphorus (P) fertilizer. However, certain bacteria in rice rhizosphere have shown the capability of solubilizing RP and supplying P to rice plants. Under certain conditions, the rate of releasing P could be low and these parameters should be optimized to obtain the full capacity of microorganisms as P biofertilizers. This study was undertaken to identify efficient RP solubilizing bacteria isolated from rice rhizosphere and the effects of parameters such as RP concentration, particle size, C:N ratio, chelation, mixed cultures, P source and Nitrogen source on their ability to solubilize RP.

A pool of 165 naturally colonizing bacteria in rice plants isolated previously were screened for their RP solubilizing ability using solid and liquid modified PVK (Pikovskaya) selective media, containing RP as the sole P source. The observed highest P solubilizing strains, numbers 36 and 52, were tested along with a reference P- solubilizing strain, EP-11, which was isolated previously from Eppawala RP mines. The results showed that optimum RP concentration for strain 36 was 10.0g L⁻¹ and 5.0g L⁻¹ for strain 52. The content of soluble P gradually decreased with a larger particle size of RP with all the isolates. The highest content of soluble P was achieved when C:N ratio was 50:1, EDTA concentration was 2.0 mg ml⁻¹, and Nitrogen source was NH₄NO₃ for both strains 36 and 52. However under the mixed cultures of strains 36 and 52, the solubilized P concentration was much lower (16.91 mg L⁻¹) than their individual P solubilization levels. The optimization of these parameters would be important in achieving the maximum P solubility if strains 36 and 52 were to be developed in to P biofertilizers.

Key words: Rock phosphate (RP), Rice, Phosphate-solubilizing bacteria, soluble phosphorus (P)

Optimization of reverse transcriptase PCR for selected hepatic cytokines in Wistar Rats

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Expression patterns of hepatic cytokines elucidates the immune and pathological pathways involved in inflammatory responses. Cytokine mRNA quantification is widely used approach in this regard that involves RNA extraction, cDNA synthesis and real-time polymerase chain reaction of selected targets. In the present study, we optimized the reverse transcriptase PCR conditions for selected hepatic cytokines; TNF alpha and IL 6 in Wistar Rats.

Liver tissues obtained from Wistar rats were washed with diethylpyrocarbonate (DEPC) treated water and frozen immediately in liquid nitrogen. Samples were stored at -80⁰C. Total RNA was extracted from 0.1 g of liver tissue using Trizol[®] according to the manufacturer's instructions. Subsequently, cDNA was synthesized from 2000ng of RNA using random primers and M-MLV reverse transcriptase enzyme. PCR for target cytokines was carried out using newly synthesized cDNA based on following PCR conditions.

For TNF alpha, 5'-TTC TGT CTA CTG AAC TTG GGG GTG ATC GGT CC-3' and 5'-GTA TGA GAT AGC AAA TCG GCT GAC GGT GTG GG -3' were used as primers. PCR was optimized with initial denaturation at 94⁰C for 1 and 30 sec followed by 35 cycles of 30 sec denaturation at 94⁰C, 1 min annealing and 1 min extension at 72⁰C. A temperature gradient of 53⁰C, 55⁰C and 57⁰C was used for annealing step. Final extension was done at 72⁰C for 3 min.

For IL 6, 5'-TCC TAC CCC AAC TTC CAA TGC TC-3' and 5'-TTG GAT GGT CTT GGT CCT TAG CC-3' were used as primers. PCR was optimized with initial denaturation at 94⁰C for 1 and 30 sec followed by 35 cycles of 30 sec denaturation at 94⁰C, 1 min annealing and 1 min extension at 72⁰C. A temperature gradient of 57⁰C, 59⁰C, and 61⁰C was used for annealing step. Final extension was done at 72⁰C 3 min.

Based on PCR products of TNF alpha and IL-6 separated by agarose gel electrophoresis, annealing temperatures for both genes were decided as 55⁰C and 59⁰C respectively.

Key Words: Rat hepatic cytokines, TNF alpha, IL 6, reverse transcription, Cytokine primers

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Optimization of three growth parameters for electrodeposition of CdS thin film semiconductor; pH, deposition temperature and deposition voltage in a stable electrolyte

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Cadmium sulfide has been identified as the most promising window material for fabrication of CdS/CdTe and CdS/CuInGaSe₂ thin film solar cells. Among vast variety of commercially available CdS fabrication methods electrodeposition (ED) is a viable technique due to its low cost and simplicity. This study focuses a procedure followed for optimization of the three growth parameters; pH of the bath solution, deposition temperature and deposition voltage for ED-CdS thin films with high photovoltaic activities utilizing CdCl₂ and Na₂S₂O₃ as cadmium and sulfur precursors respectively.

Based on the two initial leading experiments, feasible pH and deposition temperature ranges for a stable electrolyte which does not promote chemical bath formation of CdS were identified to be in the ranges of 1.5-2.0 and 50-70 °C respectively. Also, using cyclic voltammetry the feasible cathodic deposition voltage was identified to be in the range of 640-720 mV with respect to saturated calomel electrode. Consequently, the technique of the design of experiment (DOE) was carried out to establish random combinations of levels of the three electrodeposition parameters amid the previously identified parameter ranges for deposition of CdS layers via the ED technique. Finally, the electrical, optical, structural and morphological properties of the CdS thin films electrodeposited under different combinations of parameter values were investigated using photo-electrochemical cell study, optical absorption spectroscopy, x-ray diffraction method and scanning electron microscopy respectively.

The results indicated that, aqueous solutions in the pH range of 1.6 to 1.8 containing 0.10 M CdCl₂ and 0.01 M Na₂S₂O₃ at 55-65 °C can successfully be used for electrodeposition of thin film CdS semiconductor materials over a cathodic deposition voltage range of 650 to 680 mV with a deposition period of 20 to 40 min.

Key words: Electrodeposition, Cadmium Sulfide, Semiconductors, Solar energy materials

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Optimizing the Profit Using Linear Programming: A Case Study on a Concrete Yard of a Government Corporation in Sri Lanka

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The effective and optimum decision making in modern business environment is critical due to the competition and complexity. When considering a manufacturing organization, the most critical decision would be to identify the product mix that will maximize the profit while maintaining the required quality standards. This study is focused on optimizing the profit of a concrete yard of a government corporation in Sri Lanka using linear programming.

The organization considered produces Beams, Poles, Pipes and Bridge components and has available expenditure, skilled-labour and demand as the main constraints. Per unit selling price or non-labour costs do not vary based on the level of production. However the labour cost varies significantly according to the type of labour (skilled or non-skilled) allocated to different products. Therefore labour allocation becomes a sub-problem in the study. The data from March 2014 to July 2014 (150 days) was collected for the study.

This study reveals that the organization is capable of improving its profits if they produce at the optimum level. In most of the months that have been considered, the total profits can be improved over Rs.150,000 based on optimum production. The criticality of labour allocation has been proven by the results of the study. Because based on the optimum labour allocation, the organization is capable of improving its profits even if they are committed for a product mix other than the optimum product mix. This can be done by minimizing the total labour costs. Based on the optimum labour allocation for the actual production the profit can be improved over Rs.75,000 for the considered months. The sensitivity analysis indicates the sensitivity of the coefficients of the objective function and the constraints. The sensitivity of the variables as well as constraints vary based on considering time duration. The constraints have positive as well as negative shadow prices.

This model can be used to identify the future product mixes that will maximize the profit while maintaining the quality standards based on the resource availability. Even if the coefficients of the variables subjected to change, still the model can be used with little amendments to improve the profits.

Key words: Linear Programming, Optimization, Constraints, Sensitivity Analysis, Shadow Price

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Password Security Concerns and Practices of Online Account Users: Case Study in Gampaha District, Sri Lanka

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With technological advancement, usage of internet and its applications are increasing rapidly. Because of that, number of online account users are also increasing. Although there are number of authentication technique, the most usable and popular authentication mechanism is using password protection mechanism. Same time data protection is also a critical problem. There are many threats for data of online users. Most user passwords are weak. Due to that reason attacker can easily break the password using dictionary attack, password guessing and social engineering attack and so on. This study has been evaluated password security concern and practices of online users. The objectives of this study was to identify relationship between the online users' password security concerns and practices with their education level, IT Skill and social factors. Hypothesis for the study was derived from these objectives. Conceptual framework has been developed using factors identify from literature survey. Independent variables are education level, IT skill and social factors. Dependent variable is password security concern and practices. Sample has at least one year experience of using password protecting online account. Simple random sample technique was used to select sample. Sample size was 180. Questioner was used to collect data. Survey querying: general demographic information, types and number of different password protected accounts maintained, internet usage behaviors (frequency, duration and longevity of use), actual practices used in generating, storing and using passwords and practices believed they should use in generating and storing passwords. Regression model was used to identify relationships. This study identify the relationships between the variables, general password characteristics of users, password construction practices/strategies of users and user perceptions of password construction practices that should be used.

Key words: Password Practices, Password Concern, Online User Account

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Phenolic content and shelf life of commercial virgin coconut oil and copra oil

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There are two main types of coconut oil, virgin coconut oil (VCO) and copra oil (CO), based on their production process. VCO is extracted from fresh, mature coconut kernel by wet or dry methods of extraction, whereas CO is extracted by the dry method of pressing copra. Temperature exceeds 80 °C during the extraction of CO while lower temperatures around 50°C are maintained during the extraction of VCO. Shelf life is an important parameter of cooking oils and oils become rancid quickly when the shelf life is short. Minor polar compounds such as phenolic substances are known to improve the shelf life. The objective of this study was to determine total phenolic contents (TPC) and shelf life of commercially available VCO and CO, in order to see whether TPC and shelf life are correlated. Two samples from each were used for the analysis. Phenolic compounds of the oils were extracted using methanol:water (80:20 v/v) and TPC was determined using Folin-Denis colorimetric assay and expressed as gallic acid equivalents. Oxidative stability was determined using the Rancimat apparatus at 120, 130, 140 and 150 °C temperatures and extrapolated using Q_{10} temperature coefficient to obtain the shelf life at 30 °C. The TPC was significantly ($p < 0.05$) higher in CO (13.28 ± 3.13 mg/kg oil) than in VCO (0.52 ± 0.22 mg/kg oil). The induction times (hours) of VCO at 120, 130, 140 and 150 °C were 51.89 ± 0.08 , 26.39 ± 3.44 , 13.29 ± 1.84 and 6.26 ± 0.54 respectively, while that of CO were 16.22-41.71, 7.40-18.59, 3.89-14.18 and 1.89-8.43 respectively. The results indicate that induction times of commercial CO samples varied remarkably for different samples, showing the variable quality of CO in the market. The shelf life of VCO deduced was 4.75 ± 1.07 years, while that of CO varied in the range 0.87–1.26 years. The results indicate that CO with higher TPC has a shorter shelf life compared to VCO with lower TPC, suggesting that non-phenolic antioxidants which may be destroyed or inactivated at higher temperatures may be preserved in VCO to improve its shelf life.

Key words: copra oil, phenolic content, Rancimat, shelf life, virgin coconut oil

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Phytoremediation potential of *Talinum triangulare* (Ceylon spinach) towards Cr in different soils

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Phytoremediation has emerged as a plant-based and cost-effective alternative to remediate heavy metal contaminated soils. Although this technique is widely known, a significant study has not been reported yet to find out a potentially capable plant to clean Cr contaminated soils. In studies carried out by our group, six plant species (*Vernonia cinerea*, *Tridax procumbens*, *Sphagnaticola trilobata*, *Talinum triangulare*, *Clitoria ternatea* and *Vernonia zeylanica*) have been tested under Cr contaminated conditions and identified *T. triangulare* (Ceylon spinach) with comparatively higher tolerance to Cr with relatively higher biomass than other plants under contaminated conditions. The aim of this study was to compare the phytoremediation potential of *T. triangulare* towards Cr for various soil types under Cr contamination conditions. Pot experiments were carried out using four different types of soils (sand, loamy sand, clay and laterite) under Cr contamination conditions (treatments with 200 and 300 mg of Cr/ kg dry soil). Plants were harvested at 60 days of growth and Cr uptake by plant shoot and root were separately analysed by atomic absorption spectrometry.

The Cr uptake by *T. triangulare* under different soil types with maximum contaminated conditions of Cr (300 mg/kg) were analysed (ANOVA, $p < 0.05$) and showed no significant difference between loamy sand and sandy soil with the mean value of $109.30 (\pm 18.45) \text{ mg kg}^{-1}$ and $136.00 (\pm 34.70) \text{ mg kg}^{-1}$ respectively and also no significant difference between Laterite and Clay with the mean value of $36.26 (\pm 6.12) \text{ mg kg}^{-1}$ and $43.44 (\pm 4.29) \text{ mg kg}^{-1}$ respectively. The results of this study indicated that, Cr uptake capacity and the tolerability of *T. triangulare* significantly change with soil types. Even though *T. triangulare* shows to be capable of habituation in different soils, its Cr uptake capacities varies significantly. *T. triangulare* shows potential of being introduced to different terrestrial environments to remediate Cr. However, future study of the plant in different soil environments is suggested.

Keywords: phytoremediation, chromium, Talinum triangulare, soil.

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Olycyclic aromatic hydrocarbons in water bodies and sediment around kerawalapitiya and kelanitissa power plants of sri lanka - preliminary study

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Polycyclic aromatic hydrocarbons (PAHs) are a group of organic compounds composed of two or more aromatic benzene rings. PAHs are produced due to incomplete combustion of fossil fuels; such as coal, oil and due to pyrolytic processes; such as forest fires and volcanic activities. There are hundreds of PAHs in the environment, among them; sixteen PAHs have been classified as priority pollutants by the United States Environmental Protection Agency.

Due to the harmful effect of PAHs towards living beings, studies have been conducted around water bodies in different parts of the world. This study aims to determine the type and concentration of PAHs in water bodies and sediment near two power plants of Sri Lanka. Kerawalapitiya Power Station (KW) and AES Kelanitissa Power Station (KL) are diesel fuel fired combined cycle power stations, which might have an influence on accumulation of PAHs in water and sediment around these power stations.

During the dry season of the year surface water samples were collected from Hamilton Cannel (KW) and Sebasthian Cannel (KL), extracted using dichloromethane and analyzed using HPLC. PAHs from sediment samples were extracted using ultra sonicator and analyzed using HPLC. As the reference site, water and sediment samples were collected from a freshwater spring in Bandarawela. The study shows the presence of low molecular weight PAHs in water samples and most of the high molecular weight PAHs in sediments. Naphthalene, acenaphthene and fluorene are the major PAHs present in the water and naphthalene, acenaphthene, fluoranthene, pyrene and chrysene are the major PAHs present in the sediments. The total PAH concentration in surface water ranges from 0.38 – 1.89 µg/L in KL site whereas, it ranges from 0.40 – 2.21 µg/L in KW site. The preliminary study indicates the occurrence of PAHs in significant amounts around the two power plants, which is needed to be investigated further.

Key words: PAH, priority pollutants

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Potential of using the Solar Chimney Dryer for Small Scale Industries in Sri Lanka

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There have been many research work presenting various novel types of solar dryers that can be used for drying vegetables, fruits, and other agro-products etc. Solar chimney which consists of a large plate and a centered vertical chimney basically studied for electricity power generation using the draught through the chimney. In this study, it has been demonstrated by establishing a mini photo type chimney that the possibility of enhancing the drying process under the plate of a solar chimney. There is a great potential of using Solar Chimney dryer, drying for industrial, fishery and agro products or raw materials. The advantage is that drying can be done, with the similar efficiency of sun drying, under the rainy environment obviously with a low drying efficiency but without destroying quality and protecting them from environmental pollutants.

Keywords : Solar Drying, Solar Dryer

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PRELIMINARY STUDY OF THE WATER QUALITY AND PLANKTON ABUNDANCE IN BATTICALOA LAGOON, SRI LANKA

S. Dharshini, P.Vinobaba and S.K.Yatigamma

The present study investigated the prevailing condition of water quality and the abundance of phytoplankton and zooplankton assemblages across the Batticaloa lagoon. Physicochemical parameters including Salinity, Dissolved Oxygen, Turbidity, Nitrate, Phosphate, Temperature and pH were determined using the samples collected at fortnight intervals for six months from July 2013 to December 2013 from seven selected sites: Katthankudy, Kallady, Mandur, Eravur, Thiruperumthurai, Paalameenmadu and Kaluthavalai of the Batticaloa Lagoon, Sri Lanka. A distinct variation of the physico-chemical characteristics of the different regions of the Batticaloa lagoon was observed during the study. In total, 58 species of phytoplankton and 18 species of zooplankton were recorded from all seven sites. Among the 58 species of phytoplankton recorded, a diatom (Bacillariophyceae) was the dominant group, which included 25 species comprising 43% of the total taxa. In addition 13 species of Cyanophyceae (22%), 10 species (17%) of Chlorophyceae, 8 species (14%) of Conjugatophyceae, and 2 species (4%) Fragillariophyceae were recorded during the study period. The zooplankton communities of the Batticaloa lagoon consisted of the members of the taxonomic groups of Rotifera, Cladocera, Copepoda, Decapoda, Podocopida, Ploima, Arcellinida and Sessilida. Members of the phylum Rotifera was the dominant group which consist 33% of the total zooplankton. The results of the multivariate statistical analysis show that pH, turbidity, dissolved oxygen and salinity were the most important measured environmental variables that explained the species variation of zooplankton, while pH, salinity and turbidity were the most important variables that helped to discriminate phytoplankton species in all sites during the study. Thus the variation of environmental conditions and the plankton communities in different regions of the lagoon demonstrate that both zooplankton and phytoplankton species respond to environmental conditions proving the use of plankton communities in environmental predictions.

Key words: Water quality, Phytoplankton, Zooplankton, Parameters

Qualitative phytochemical analysis and phenetic variation of *Piper* species in Sri Lanka

S.P.N.C. Jayarathna¹, S.P. Senanayake¹, L.R. Jayasekera¹

The genus *Piper* is represented in Sri Lanka by ten species of which three are endemics. *Piper nigrum* L. (black pepper) and *P. betle* L. (betel) are the main crops that make the genus commercially important and some species are used in traditional medicine. This study aimed to reveal the interspecific relationships of selected *Piper* species based on the variation in qualitative phytochemical screening and phenetic approach.

Piper nigrum L., *P. betle* L., *P. longum* L., *P. chuyva* (Miq.) C. DC., *P. siriboa* L., *P. sylvestre* Lam. and *P. zeylanicum* Miq. were collected from natural habitats and from the cultivations. The air dried leaves were powdered using a grinder and subjected to successive extraction using petroleum ether, chloroform, ethyl acetate and methanol. All the extracts were subjected to qualitative phytochemical tests. Anatomical studies were carried out by observing epidermal peels and transverse sections of the fresh leaves and photomicrographs were prepared.

The phytochemical screening confirmed the presence of tannins, flavonoids, terpenoids, glycosides, alkaloids and phenolic compounds in all the species examined. Various types of trichomes, glands and secretory cells were present in the leaves which indicates the richness of secondary metabolites. Fourteen morphological and anatomical characters of leaves were subjected to cluster analysis using PAST software to infer interspecific relationships. According to the phenogram (Single linkage, Euclidean distance), *P. longum*, *P. zeylanicum* and *P. sylvestre* were clustered to one group showing more similarities while *P. nigrum*, *P. chuyva*, *P. siriboa* and *P. betle* were separated from the rest. Presence of non-glandular trichomes, symmetry of the leaf base and leaf length were the most discriminating characters.

Keywords: Piper, Phenetic variation, Phytochemical screening

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Real Time Emotion Based Music Player for Android

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Listening to music has been found to affect the human brain activities. Emotion based music players with automated playlists can help users to maintain a selected emotional state. This research proposes an emotion based music player that create playlists based on real time photos of the user.

Two emotional statuses, happy and not-happy were considered in this study. User's images were captured in real-time using an android device camera. Grey scaled images were used to compress the image files. Eye and lip areas were cropped and sent to the MATLAB backend via client server-socket connections. Gaussian filtering was applied to reduce noise. Canny Edge Detection algorithm was used for edge detection.

Eigen face-based pattern recognition was used for emotion recognition. PCA eigenvectors were learnt from the dataset via unsupervised training to learn the Eigen face models. The dissimilarity between pairs of face images projected to the Eigen space were measured using the Euclidean distance. The matched image was the one with the lowest dissimilarity. The identified label, happy/not-happy was transmitted back to the Android music player via a client server socket connection. Songs that are pre-categorised as happy/ not-happy are stored in the android application. When emotional label of the perceived face image is received, songs relevant to the received emotional label are loaded to the android music player.

120 face images were collected at the Department of Statistics & Computer Science, University of Kelaniya for validation. Another 100 happy and 100 not-happy images were collected for testing. Out of the 100 test cases with happy faces 75 were detected as happy and out of the 100 not-happy faces 66 were classified as not-happy. The overall accuracy of the developed system for the 200 test cases was 70.5%.

This concept can be extended from a single face to multiple faces and the system has to be made more robust to noises, different poses, and structural components. The system can be extended to include other emotions that are recognizable via facial expressions.

Key words: Gaussian Filter, Canny Edge Detector, Eigen Face, Principle Component Analysis.

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Repellent Activity Of Mosquitoes To Herbal Formulations

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The present study was conducted to determine the mosquito repellent activities of some selected plant materials in order to obtain safe and efficient herbal mosquito repellent formulations by combinations of the selected plant materials. *Azadirachta indica* seeds were soaked in hexane overnight and extract was filtered and the filtrate was concentrated by rotary evaporator. Same procedure was carried out for *Vitex negundo* leaves using hexane and ethanol solvents. Hydro-distillation process was performed for *Ocimum sanctum* leaves, *Curcuma longa* rhizomes and *Citrus sinensis* peels using Clevenger-arm apparatus in order to obtain the essential oils. Essential oils of *Cymbopogon nardus* leaves, *Eucalyptus globulus* leaves and *Syzygium aromaticum* buds were purchased from a reliable source. 10% (V/V%) extract / essential oil containing ethanol solutions were prepared using each plant extract / essential oil and mosquito repellent activity testing was carried out using arm-in-cage method. Volunteer's forearm which had been rubbed with 1 ml of the test solution was exposed to the cage where 20 blood-seeking mosquitoes had been placed and the number of mosquitoes that aligned or biting the arm was recorded in each minute for five minutes. 3 replicates were carried out for each extract / essential oil containing ethanol solutions. After analysing the mosquito repellent activity of individual extracts and essential oils, a mosquito repellent gel and a mosquito repellent spray which contained 16% (V/V%) active ingredients each were prepared. Outdoor and indoor field trials were conducted in two days from 5 am to 11 am by separately applying the mosquito repellent gel and the mosquito repellent spray on volunteers' legs. The mosquito repellent activities were found to be in the order: *Cymbopogon nardus* and *Eucalyptus globulus* (100%) > *Ocimum sanctum* (97.94%) > *Syzygium aromaticum* (95.81%) > *Citrus sinensis* (93.75%) > *Curcuma longa* (89.56%) > *Vitex negundo* (85.44%) > *Azadirachta indica* (81.25%). The gel and the spray showed 100% mosquito repellency for outdoor and indoor field trials which were carried out for six hours each day for two days.

Key words: Mosquito Repellent Activity, Plant Extract, Essential Oil,

Sales Prediction with Data Mining Algorithms

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Nowadays most business fields using many strategies to improve business profits. Most of them used traditional methods. Therefore, those company's efficiency and profit goes to the critical situation. So the improve efficiency of the company is a major requirement for nowadays business platform. Using new technologies companies can improve their profit and efficiency. Also companies can identify their sales life-cycle.

This sales prediction was carried for Alfred Edirisinghe (PVT) LTD which is a medium scale tyre dealer in Colombo. Decision Tree, Association Rules and Naïve Bayes data mining models were attempted for the prediction. The best algorithm was selected for each model. Item Code, Item Type, Item Quantity, Item Value, Item Sold Date, etc. variables were used in data mining process. Among those variables five variables were selected for the mining process.

A sales data sample with 5000 records were provided by the client for the analysis. Out of the 5000 records 30% was used in the mining process. According to the predicting probabilities, Decision Tree algorithm were performed 98.65%, Association Rules algorithm were performed 100.00% and Naïve Bayes algorithm were performed 99.57%. Decision Tree belongs to the lowest predict probability value. Therefore Decision Tree model was the worst model. Association Rule model contains highest predicted value 100.00%. Therefore it was the best model. Naïve Bayes model was also a good model. The Score results indicate that Decision Trees and Naïve Bayes mining model has the best score 1.00 and followed by Association Rule mining algorithm with score of 0.99. By considering score and target population with predicting probabilities, Association Rule algorithm was the best one for prediction process.

Data mining model was implemented using Association Rule algorithm. According to these predicting results, the company can handle their imports optimizing the available resources; storage, time, money. Therefore this research would benefit the Company to improve their incomes.

Key words: Business Intelligence Tool, Data Mining, Decision Tree, Association Rules, Naïve Bayes.

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Seasonal water level fluctuation, habitat alteration and colonization of marginal benthic fauna in irrigation reservoirs in the Kala Oya River basin in Sri Lanka.

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The innumerable benthic microhabitats in freshwater ecosystems support a wide variety of fauna. These benthic fauna are sensitive to natural as well as anthropogenic disturbance events such as water level fluctuations, temperature variations, agrochemical inputs etc. The present study was carried out to investigate the effect of seasonal water level fluctuation on the distribution and colonization of benthic fauna at some irrigation reservoirs in Sri Lanka.

The study was carried at 10 reservoirs namely Angamuwa wewa, Balalu wewa, Dewahuwa wewa, Ibbankatuwa wewa, Kandalama wewa, Katiyawa wewa, Kala wewa, Siyambalangamuwa wewa, and Usgala-Siyambalangamuwa wewa in the Kala Oya river basin in Sri Lanka. The study period (September, 2014 to March 2015) included a dry season followed by a rainy season. Soil core samples ($n = 15$, volume = 0.5 dm^3 each) from within 3 random locations in the marginal zone of each reservoir at each season were collected using a soil corer. After the samples were wet sieved *in situ* through a 1 mm sieve, the macrobenthic fauna in each sample were separated, identified to the nearest possible taxonomic level and enumerated separately. Environmental parameters such as aquatic vegetation, shadiness, soil texture, soil pH and the degree of water inundation were also measured using standard methods. The Shannon-Wiener diversity index for each reservoir for the two climatic seasons were determined and were statistically compared by a t-test. The abundance of benthic species at different study sites were analyzed using cluster analysis. The importance of environmental variables on the abundance of macrobenthos for both seasons were tested by the Principal Component Analysis (PCA).

Altogether 17 taxa were recorded. *Bellamya* (Mystery snail) (62.2 ± 17.2) and *Melanoides* (Trumpet snail) (38.5 ± 11.6) were the dominant taxa during the dry season while *Bithynia* (Mud snail) (15.77 ± 6.75) and *Bellamya* (4.83 ± 1.38) dominated during the rainy season. The species richness was higher in rainy season (17 taxa) than in the dry season (11 taxa). This was due to the presence of six additional taxa i.e. Chironomidae, Oligocheata, Ephemeroptera, Trematoda, Zygoptera and *Bithynia*) during the rainy season. The species diversity of the reservoirs was significantly high during the rainy season (t – test, $P = 6.2148$, $\alpha = 0.05$, $df = 22$). PCA revealed that the degree of water inundation and aquatic vegetation to be the key factors that determine the species distribution of these reservoirs. The elevated species diversity perhaps may be due to the enhanced growth of aquatic vegetation at the shallow marginal habitats when the reservoirs were inundated by water during the rainy season. The change of this habitat alteration may have positively supported the colonization of new insect taxa such as Chironomids, Ephemeropterans and Zygopterans into these shallow marginal habitats of irrigation reservoirs in the Kala Oya River Basin in Sri Lanka.

Key words: Irrigation reservoirs, Habitat alteration, Seasonal water level fluctuation, Macrobenthic fauna, Species diversity.

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Selenium in rice consumed by Sri Lankans

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Selenium is an essential trace element found in the selenoproteins and as a component of enzymes such as glutathione peroxidase that could quench free radicals by acting as antioxidants and prevent free radical induced degenerative diseases such as diabetics, Alzheimer, rheumatism and the deficiency of selenium could result in iodine deficiency resulting goiter. It also proved that selenium is toxic in high concentrations resulting in damages to the nervous system and even some forms of cancer. Unlike most elements the essentiality and toxicity of selenium is shown in a narrow range the respective values being $40 \mu\text{g day}^{-1}$ and $400 \mu\text{g day}^{-1}$.

Studies on selenium content in food have been reported from other countries but studies carried out in food consumed by Sri Lankans is rare. Hence, the objective of the present study is to determine the selenium content in different varieties of rice consumed by Sri Lankans. Parboiled rice is commonly consumed in Sri Lanka. Studies have not been carried out in Sri Lanka or any other country on the effect of parboiling on the selenium content. Hence, this study was extended to deduce the effect of parboiling on the selenium content in rice.

Selenium content in fourteen varieties of rice namely Bg 250, Bg 352, Bg 358, Bg 359, Bg 360, Bg 379, Bg 450, Bg 094, Bw 361, Bw 363, Bw 364, Ld 408, At 306 and At 362 obtained from the Rice Research Institute, Batalagoda and subjected to acid digestion. Selenium contents of the samples were determined using Hydride Generation Atomic Absorption Spectrometric method. Experiments were carried out in triplicate. The selenium content ($\mu\text{g kg}^{-1}$) in the rice samples analyzed ranged from 24.5 (At 362) - 40.5 (Bg 094).

The selenium content in parboiled rice was analyzed by parboiling the above raw rice samples at home. The results of the present study showed that the selenium content ($\mu\text{g kg}^{-1}$) in the grains from par boiled rice varied from 29.0 (Bw 361) to 42.0 (Bg 352). This study reveals that parboiling increased the selenium content in rice although a direct relation could not be obtained between the selenium content in raw rice and that in the parboiled rice.

Key words: Selenium, Rice, Parboiled rice, Sri Lanka

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The stable isotope ratios of $^{13}\text{C}/^{12}\text{C}$ and $^{15}\text{N}/^{14}\text{N}$ and the weight ratio of total carbon to total nitrogen (C:N) are important indicators in the field of environmental monitoring. As a part of the assessment of nutrient enrichment in Negombo lagoon ecosystem, stable isotope technique is used to study the stable isotope ratios of mangroves and adjacent water. Although this technique is an advanced tool to identify the fingerprints of environmental pollutant sources, totally new to the research field in Sri Lanka.

The fresh mangrove leaves (young, matured and old) of *Rhizophora apiculata* and *Rhizophora mucronata* species, totally 35 samples and 10 surface water samples were collected from 12 sampling points randomly selected from the bank of Negombo lagoon. The leaves were rinsed with distilled water, oven dried at 40 °C for 48 hours and powdered. The water samples were filtered into glass fiber filters to collect suspended particulate materials in the water and filter papers were oven dried at 40 °C for 24 hours. Samples were analyzed by combustion on a Eurovector elemental analyzer coupled to an Isoprime mass spectrometer in GNS science, New Zealand.

There were some effects of %Nitrogen (%N) on the old leaves where the %N is quite low (range 0.3% to 1.7% with a mean value of 0.6%), but generally young and matured leaves had similar trend in % N (range 1.1% to 2.9% with a mean value of 1.8% and range 0.7% to 2.9% with a mean value of 1.5% respectively). The behavior of isotopic Nitrogen-15 ratio ($\delta^{15}\text{N}$) in those three types of mangrove leaves was significantly diverse compared with behavior of %N in leaves. The range of $\delta^{15}\text{N}$ in young and matured leaves was from 2.3‰ to 12.3‰ with a mean value of 5.4‰ and this ratio in old leaves had a range from 5.1‰ to 8.0‰ with higher average of 6.52‰. The average % Carbon values (%C) of all the three types of mangrove leaves were in the range of 42% to 43%. The isotopic Carbon-13 ratio ($\delta^{13}\text{C}$) of young, matured and old leaves was within the common range for C3 plants, with values ranging from -25.4 to -32.7‰ and average of -29.5‰.

The total Carbon to total Nitrogen ratio (C: N, atom) had increased in older leaves (range 36.2 to 163.3 with mean value of 120.8), and significantly decreased in matured and young leaves (average values of 41.9 and 34.5 respectively). The average $\delta^{13}\text{C}$ value of the lagoon water was -24.6‰ and average $\delta^{15}\text{N}$ value of the water was 6.7‰.

The carbon and nitrogen isotopic compositions obtained in this study are comparable with previously published results in the other coastal regions of the world. As an initiative research study on the stable isotope analysis in Sri Lanka, the results and findings, generated in this study can be considered as the baseline data for future studies based on the lagoon ecosystem.

Key words: stable isotopes, isotopic ratio, mangroves, ecosystem

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Study of Mobile Learning Activities Amongst Undergraduates

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The accommodation of mobile contrivances gives users anytime-anywhere access to information and applications. Sitting on the train, waiting at the playground are occasions that now provide opportunities to access to information or tasks and learn. These “micro time slots” can elongate the opportunities for perpetuated learning and information processing. The time constraints for incipient training in a diligent workplace can be less of a worry, enabling individuals to catch up on learning requisites in diminutive snippets of time. This makes pedagogic sense as well. Mobile use fortifies a form of spaced learning, where the reiterated and temporally spaced exposure to pertinent course content can ameliorate retention and increases competence.

Two broad objectives of this study are 1) To ascertain whether there is any consequential difference in the mean scores of mobile learning activities amongst the undergraduates with reverence to their gender, study stream, year of learning, residence of home and locality of the institution. 2) To ascertain where there is any paramount difference in the mean scores of mobile learning activities among the undergraduates with reverence to their Father’s scholastic qualification. Survey method is employed for this study. The investigator has chosen 230 undergraduates using random sampling technique, who study in a private university. The hypotheses defined was, there is no significant difference in the mean scores of mobile learning activities among the postgraduate students with respect to their gender, course of study, year of studying, residence of home and locality of the institution. and the mean scores of their Father’s educational qualification

Finally, the results reveal that; (a) There is no significant difference in mobile learning activities among the undergraduates with respect to their course in terms (b) There is no significant difference in mobile learning activities among the undergraduates with respect to their Father’s Educational Qualifications. Etc., This study show that the emergence of incipient technological environment may revolutionize the edification cognition process. The role of the lecturer will be different from the traditional classroom edifying. The lecturer could be a manager, monitor, role model, counselor, facilitator and a gregarious worker. Edifying methodology will shift from edifier-centered inculcation to learner-centered inculcation.

Key words: Assessment, Mobile Learning, Activities, Undergraduates

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The effect of moisture content on the soil organic matter decomposition in Muthurajawela marsh soil – a preliminary study

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Muthurajwela marsh situated along the west coast of Sri Lanka is being highly exploited by the industries to dump their waste. According to the literature a high organic matter content in the marsh (>30%) is having a linear relationship with the soil cation exchange capacity (CEC), making industries to consider the marsh a potential wasteland with a high capacity to hold heavy metal cations. The high CEC of marsh is capable to act as a buffer preventing the surrounding ground water becoming acidic even though the organic soils are acidic.

With the accelerated development around the area, various anthropogenic activities have been affecting the moisture content of the soil which may alter the quality of the marsh. In an attempt to investigate the effect of the changing moisture content on the soil properties of the marsh, a preliminary study is being conducted at certain areas in the periphery of the Muthurajawela sanctuary. The observed results are as follows; moisture content of 17.64% to 168.71% (by dry weight) and 36.63% to 84.31% (by wet weight), organic matter content of 5.06% to 57.89% (by dry weight), total CEC of 96 to 696 meq/100g soil, soluble soil pH of 2.10 to 7.91 and exchangeable soil pH of 2.08 to 7.26. Samples from the sites that had very high moisture levels showed higher organic matter contents, low pH values and very high CEC. As the soil moisture decreased, the organic matter levels and the total CEC decreased while the soil pH increased according to the study so far.

The study implicates that the moisture content has a significant influence on the organic matter content of the marsh soil and hence is important in monitoring the quality of the marsh. Reduction of the soil moisture due to anthropogenic activities is therefore suggested to be directly affecting the continuity of the organic nature of the soil. Hence the cation exchange capacity and other properties of the soil would be altered making long-term loss of soil moisture putting the wetland system at the risk of losing its ecological performance. Therefore the Muthurajawela marsh needs strict conservation.

Key words: Muthurajawela Marsh, Organic matter, Moisture content, Cation Exchange Capacity, CEC

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Thermal stability of phenolic compounds in coconut cake and its stabilizing effect on stripped sunflower oil

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Coconut cake possesses phenolic compounds which are antioxidatively active in chemical and food model systems. However, the thermal stability of these phenolic compounds has not yet been investigated. In this study, the thermal stability of phenolic compounds in coconut cake (PCCC) was compared with that of synthetic antioxidants, butylated hydroxy toluene (BHT), butylated hydroxy anisole (BHA) and tert butyl hydroxy quinone (TBHQ) using two food model systems. PCCC were extracted using ethanol:water (70:30 v/v) and the phenolic concentration was determined using the Folin-Dennis method. Thermal stability was tested by heating PCCC and other synthetic antioxidants at 180 °C up to two hours. In 30 min intervals, the activity of heated antioxidants were tested by evaluating their ability to inhibit thiobarbituric acid reactive substances (TBARS) formation in egg yolk emulsion (EYEM). The percentage inhibition of TBARS formation was calculated against a control EYEM sample prepared without added antioxidants. Protective effect of antioxidants on stripped sunflower oil (SSO) was also evaluated. For this purpose, PCCC and synthetic antioxidants were heat treated at 180 °C for two hours and these antioxidants were incorporated into SSO. The induction time (IT) of SSO was determined at 100 °C in the Rancimat apparatus. The percentage inhibition of TBARS formation in EYEM by BHT, BHA, TBHQ and PCCC decreased with heating time and the percentage inhibition of all antioxidants decreased below 40 % after two hours of heating at 180 °C. However, at 30 min of heating, inhibition percentage of TBARS formation by PCCC (72±4 %) and TBHQ (68±2 %) is considerably higher compared to BHT (54±2 %) and BHA (42±2%). The IT of SSO varied in the order, control (1.85±0.14 h) < BHT (2.06±0.08 h) < BHA (2.14±0.06 h) < PCCC (2.18±0.03 h) < TBHQ (2.44±0.10 h). The results of these experiments suggest that PCCC can be used to stabilize foods under high temperature cooking conditions.

Key words: Coconut cake, Egg yolk emulsion, Phenolic compounds, Rancimat, Thermal stability

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Effects of the Cosmological Constant on Energy and Angular Momentum of a Particle Moving in a Circle with Respect to the Schwarzschild - de Sitter Metric in Comparison with the Schwarzschild Metric

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Considering the Schwarzschild - de Sitter space-time, many authors have explored a range of cosmological events and effects. But, the effects of the cosmological constant (Λ) on energy and angular momentum in the Schwarzschild – de Sitter space-time are not studied in depth in comparison to the Schwarzschild space-time.

In this study, we obtain the expressions for total energy per unit rest mass (E') and for angular momentum per unit rest mass (h') not only in the Schwarzschild - de Sitter space-time but also in the Schwarzschild space-time considering a particle moving in a circular path. Then, we discuss the conditions for the possibility of circular orbits. Finally, we plot the graphs for E' and for h' against the coordinate radius of the circle for different low and high values of the central mass (M) for positive and negative cosmological constants for the Schwarzschild - de Sitter space-time in comparison with the Schwarzschild space-time. Also, we plot the graphs for $M = 0$ when Λ is negative.

Considering the plotted graphs, we conclude that the effects introduced by the cosmological constant on E' and h' are negligible with the present value of the cosmological constant. But, for higher cosmological constant values, the effects on E' and h' are known to be significant. However, Λ affects E' and h' indeed when a particle moves in a circle.

According to this study, positive Λ creates a repulsive field and when it is negative it creates an attractive field. Accordingly, in the nonappearance of a central mass there is no possibility of circular motion when Λ is positive as a repulsive field would not give rise to circular motion. In the case of the Schwarzschild - de Sitter space-time E' and h' for a particle moving in a circle are less (greater) than that in the case of the Schwarzschild space-time when Λ is positive (negative).

Key words: Schwarzschild - de Sitter space-time, Schwarzschild space-time, Cosmological constant

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Use of erythrocytic nuclear abnormalities of feral fish species as biomarkers for assessing potential genotoxic impacts in Kelani River

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Nuclear abnormalities in the peripheral erythrocytes of fishes inhabiting contaminant waters are useful biomarkers for assessing genotoxic potential of surface waters impacted by anthropogenic contaminants. Kelani river which receives a wide variety of contaminants from multiple sources including industrial effluents and domestic waste, is ranked as the most polluted river in Sri Lanka. However, scientifically based evidences on biological impacts of Kelani river pollution on its resident fauna are meagre. In the present study, frequencies of erythrocytic nuclear abnormalities in the two fish species inhabiting Kelani river viz. *Etroplus suratensis* and *Dawkinsia singhala* were evaluated in order to assess the potential genotoxic impacts. *E. suratensis* were sampled from Ruwanwella (upstream) and Mattakkuliya (seaward site) sites, whereas *D. singhala* were sampled from the sites located in Ruwanwella and Kaduwela (between upstream and seaward site) during the years 2013-2015 covering dry and wet periods. Erythrocytic nuclear abnormalities in the blood of sampled fishes were evaluated using standard procedures. In addition, surface waters of the fish sampling sites were physico-chemically characterized using standard analytical procedures. Water quality parameters indicated high levels of chemical oxygen demand and heavy metal levels in Mattakkuliya and Kaduwela sites in comparison to Ruwanwella site. Despite temporal variations, frequencies of total erythrocytic nuclear abnormalities were significantly higher in the *E. suratensis* sampled from Mattakkuliya site than those from Ruwanwella site ($P < 0.05$). In addition, *D. singhala* sampled from Kaduwela site had significant total erythrocytic nuclear abnormalities than the fish from Ruwanwella site. Of the four types of nuclear abnormalities detected, blebbed and noched nuclei contributed mainly to the induction of total erythrocytic nuclear abnormalities than binuclei and nuclear buds. Comparison of erythrocytic nuclear abnormalities of the two feral fish species inhabiting Kelani river together with physico-chemical analysis revealed that Mattakkuliya and Kaduwela sites of the Kelani river are polluted with genotoxic contaminations which can induce harmful impacts on indigenous fauna.

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Key words: Contaminant waters, biological impacts, feral fish

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Use of molecular features for identification of isolated fungal pathogens of big onion damping off disease and *Trichoderma* spp. isolated from soil

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Big onion (*Allium cepa* L.) is one of the economically important spices grown in Sri Lanka. Damping off disease caused by *Fusarium* sp. during nursery stage of growth poses a major factor that affect the yield significantly. Application of fungicides decrease incidence of damping off disease considerably, but this is neither economical nor environmental friendly. Thus, disease management practices have to be directed towards biological control strategies. *Trichoderma* spp. have been extensively studied as biological control agents for controlling numerous soil-borne fungal pathogens. In the present study, isolation and identification of fungal pathogens associated with damping off disease of onion and *Trichoderma* spp. present in soil of the same onion fields was carried out with a view to using the *Trichoderma* spp. in the management of damping off pathogens. Pathogens associated with damping off were isolated from diseased and healthy seedlings (7-30 days old) collected from the fields in the Matale and Anuradhapura districts. Seedlings were surface sterilized and plated in Potato Dextrose Agar (PDA) supplemented with tetracycline. Soil samples collected from the same fields were used for the isolation of *Trichoderma* spp. using the Warcup method. Based on morphological characteristics and using identification keys, the fungal pathogens isolated from seedlings were identified as *Fusarium*, *Curvularia*, *Alternaria* and *Sclerotium* spp. and 14 fungal species isolated from soil samples were identified as *Trichoderma* spp. Although fungi can be identified using morphological features, the use of molecular biological methods tend to be more accurate. Therefore, the identity of isolated fungal species was confirmed by molecular biological methods. Genomic DNA of *Fusarium* spp., *Alternaria* spp., *Trichoderma* spp. were extracted. Molecular characterization of these DNA was carried out using Polymerase Chain Reaction (PCR) where the Internal Transcribed Spacer (ITS) region of rDNA gene was amplified using ITS-1 and ITS-4 primer pairs. The products were subjected to agarose gel electrophoresis. The procedures were repeated 3 times. Results showed 550 bp size bands characteristic of *Fusarium* spp. and 570 bp products specific to *Alternaria* spp. confirming the previous identity using culture based methods. Fungal species isolated from soil showed products of 600 bp which corresponds to *Trichoderma* sp. Molecular characterization of the potential biocontrol agents *i.e.* *Trichoderma* spp. and *A.cepae* L. pathogens using PCR amplification of ITS region confirmed the preliminary identities carried out using culture based methods.

Key words: *Trichoderma* spp., *Fusarium* spp., ITS, PCR, *A.cepae* L.

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Causes and Directions of Elephant Migration, A Geographical Survey: Yala National Park

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Introduction: Sri Lankan elephants (*Elphaha maximus maximus*) more necessity and unrestricted natural corridors to migrate to find its seasonal ecological niche as natural way of life as well as to avoid pressure in their home ranges. As Study Area, Yala National Park (YNP) is facilitating more than 400 elephants. The objective of this paper is to find the causes and directions of elephants migration from YNP. The fieldwork was conducted in occasional nodes around the park through observation and interviews with officers and local people in December 2014 and March 2015.

During the dry season between March and September, 60 % of the total elephants migrate from YNP due to lack of carrying capacity, besides 03 % wander to find minerals and 5% wander to other areas due to attraction of fruits and vegetables around the park, in March and April at night around 7.00 pm to 1.00 am they spend outside the park. Due to the human interference in the park including setting fire, cutting trees, hunting, shooting at elephants, building fences and huts, visitors hooting motor vehicle hones, shouting, flashing their cameras and throwing stones direct 07% to wander outside the park. In addition 35% migrate as their annual routine from YNP. Elephants migrate from North Western Block of the Park to Maligawila and Moneragala jungles, from Western Block of the Park to Lunugamvehera, which acts as a national park as well as a corridor, from Yala East: Eastern Block of the Park to Poththuvil jungle and from Block I and II: of the Park to Bundala. This is very obvious during March to September but peak in May to July.

Key words: Elephant, Migration

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**ලන්දේසි පාලන සමයේ ඉදිවූ කොළඹ කොටුවේ වුල්ෆන්ඩොල් දේවස්ථානය
පිළිබඳ විමර්ශනයක්**

එස්.ඒ. දිල්හානි S.A. Dilhani¹

17 වන සියවස ආරම්භයත් සමඟ පෙරදිග මුහුදු කලාපයේ මෙතෙක් පෘතුගීසීන් දැරූ ස්ථානය ලන්දේසීන් අතට පත්විය. 1602 දී ඕලන්ද සියලු වෙළඳ සමාගම් එකතු වී ඕලන්ද පෙරදිග ඉන්දීය වෙළඳ සමාගම පිහිටුවා ගනිමින් පෙරදිග ප්‍රදේශවල වෙළඳ බලය හා බලකොටු පිහිටුවීය. 1638 දී මුල්වරට ලන්දේසීන් ලංකාවේ පාලකයා සමඟ ගිවිසුමක් ඇති කරගැනීමෙන් පසුව මෙරට දේශපාලනයට සම්බන්ධ විය.

1638 - 1658 අතර කාලයේ ලන්දේසීන් පහත රට ප්‍රදේශවල සිය ආගමික කටයුතු ආරම්භ කළ නමුත් ඔවුන්ට පෘතුගීසි ආගමික ආධිපත්‍යයට විරුද්ධව සටන් කිරීමට සිදුවිය. මන්ද, ලන්දේසීන්ගේ ආගම වූයේ රෙපරමාදු කතෝලික ආගමයි. මෙහි විශේෂත්වය නම් රෙපරමාදු දේවස්ථාන තුළ කන්‍යා මව්තුමියගේ හා ශාන්තුවරයින්ගේ චිත්‍ර, මූර්ති කැටයම් දක්නට නොලැබෙන අතර වාමී බවින් යුක්තවීමයි.

ලන්දේසීන් පෘතුගීසි දේවස්ථාන තම ආගමික අභිලාෂයට ගැලපෙන පරිදි වෙනස් කර ගැනීමට සමත් විය. මාතර, ගාල්ල, කල්පිටිය, යාපනය යන ලන්දේසි බල ප්‍රදේශවල රෙපරමාදු දේවස්ථාන දැකිය හැකි අතර ලන්දේසි පාලන සමයේ ප්‍රධාන දේවස්ථානය වූයේ කොළඹ කොටුවේ පිහිටි වුල්ෆන්ඩොල් රෙපරමාදු දේවස්ථානයයි. 1749 දී ලන්දේසීන්ගේ විශාලම දේවස්ථානය මෙය වන අතර කලින් පෘතුගීසි පල්ලියකි. පසුව ලන්දේසීන් තමන්ගේ ආගමික පරිසරයට අනුකූල වන පරිදි වෙනස් කර ගත්හ. දේවස්ථානය ඉදි කිරීමට අනුග්‍රහය දක්වා තිබෙන්නේ ජූලියස් වැලන්ටයින් ස්ටෙයින් ගන් ගෙලනීස් නම් ආණ්ඩුකාරු විසිනි. මුලින් ම මෙම දේවස්ථානය භාවිතා කොට ඇත්තේ තම ආගම වෙනස් කරමින් කතෝලික ආගම වැළඳ ගත් ලංකිකයන්ට වුවත් පසුව ලන්දේසි පෙරදිග වෙළඳ සමාගමේ දේවස්ථානයක් බවට පත් විය.

කුරුසයක හැඩයක් ගන්නා මෙම දේවස්ථානය වාමී බවින් යුක්ත අතර අලංකාරබවක් එක් කර ඇත්තේ 17 හා 18 වන සියවස්වල යුරෝපයේ ප්‍රචලිත වූ බැරෝක් (Baroque) සහ රෙකෝකෝ (Rococo) ගෘහ නිර්මාණ ශිල්පීය ලක්ෂණ වලිනි.

මූලාශ්‍රය පරිශීලනය හා දත්ත එක්රැස් කිරීම මගින් සහ අදාළ ක්ෂේත්‍රය ගවේෂණය කරමින් මෙම පර්යේෂණය සිදු කරනු ලැබේ. මෙහිදී වුල්ෆන්ඩොල් දේවස්ථාන ගොඩනැගිල්ලේ වාස්තු විද්‍යාත්මක අංග සහ එහි සුවිශේෂත්වය පිළිබඳ අවධානය යොමු කරමින් ලන්දේසි පාලන සමයේ ඉදිවූ කොළඹ කොටුවේ වුල්ෆන්ඩොල් දේවස්ථානයේ ඓතිහාසික වැදගත්කම පිළිබඳ අධ්‍යයනය කිරීම මෙම පර්යේෂණයේ අරමුණ වේ.

මුඛ්‍ය පද - ලන්දේසීන්, රෙපරමාදු දේවස්ථානය, ගෘහ නිර්මාණ ශිල්පය

¹. ආධුනික කම්කාරුවා, ඉතිහාස අධ්‍යයන අංශය, කැලණිය විශ්වවිද්‍යාලය, ශ්‍රී ලංකාව.
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2015 General Election and Political Cartoons

Aththanayaka Madhurani¹

A political cartoonist can express in one drawing an idea which may require a thousand words. In this study, while establishing this potential of the cartoonist, the researcher focuses on how political ideology is represented through cartoons. The sample for the study consists of cartoons which were published during the period starting from the date on which the nominations were given for the 2015 general election (i.e 14-07-2015) to the day of the election (i.c 17-08-2015). The content analysis was done using the cartoons which appeared on the newspapers with the largest number of sales in Sri Lanka. These newspapers were selected based on the report of the Sri Lanka press council. The content of a political cartoon can be categorized into six parts i.e symbol, labels, caption, exaggeration, common method and dialogue. When analyzing the political cartoons according to these categories, it becomes apparent that the political cartoons represent the political ideology espoused by the particular newspaper. This was clearly identified according to the time frame of the study and by the day of the election.

Key words: political cartoon , election, newspapers

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A Critical Evaluation of Pedophilia from a Biopsychosocial Perspective

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Child abuse is one of the most important and crucial topics not only in present Sri Lanka but also in whole world. Among the many forms of child abuse, sexual abuse holds a higher place. Sometimes, the victims of sexual abuses are killed. However, in Sri Lanka, number of sexual abuses of little children; both males and females has increased. Over 1500 cases related to children reported per year in Sri Lanka. In modern Psychology, sexual attraction to little children and interest to engage in sexual activities with little children (generally aged 13 or younger) is considered as an abnormal behavior. This abnormal or psychopathological behavior is a mental disorder which is named as "pedophilia" or "pedophilic disorder" in Diagnostic and Statistical Manual of Mental Disorders-V (DSM-V). The American Psychiatric Association (APA) has included "pedophilia" as a mental disorder in its DSM since 1968. There are various types of pedophilias and various perspectives and approaches try to understand "pedophilia" from their view points. Here, an attempt is made to understand and explain "pedophilia" from a biopsychosocial perspective. Here, with the newest findings of research studies about "pedophilia," from biological, neurobiological environmental and psychological perspectives, the sufficient and necessary causes and facts about "pedophilic disorder" will be discussed.

Keywords- Pedophilia, DSM-V, Neurobiology, Environment, Psychology, Mental Disorder

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A sociological study on puberty rites effects on self control in Sri Lankan society

Udeni Herath¹, Nisanka Jayarathna²

Attain puberty is a physical and social process. It is a decisive moment of women's life. The girl before attain puberty is called "*Kanyawa*" (virgin) and after it she is called "*Kanyawada*". In that manner she has to live under socially and culturally created restrictions. The puberty rites in Sri Lankan society are given proper sexual knowledge and the self control through "*Kotahalu Yagaya*" (a cultural dance which is conducted to abandon evils from newly attained girl and *Kotahalu* is another Sinhalese word for attain puberty). For instance the "*Gaba Uthpaththiya*" is coming on *Kotahalu yagaya* has clearly revealed it.

“Thun dina athulatha rudiya dutu thena - Kam rasa windimin satha hata leda ena

In dahasaya dina daru pala dena - Min mathuwata daruwan noma upa dina”

But present society pays less attention on this kind of traditional customs. This study attempts to identify the contribution of puberty rites on Self control and its necessity for modern society. Can puberty rites of Sri Lanka effect on Self control? Was the **research problem** of this study. The main **objectives** of this study are three fold, identify cultural value of puberty rites and its degeneration, identify the contemporary importance of rites of passage and identify the reasons for the exclusion of puberty rites from people. The proper research methodology causes to protect its accuracy and rationality. Main **research methodology** of this study was case study method. Interviews, participation observation were used as data collecting techniques. Books, articles, magazines were used to collect secondary data and interviews and participation observation were helped to collect primary data. The proper sexual knowledge and self control to the adolescence and society are given by puberty rites, expansion of free education, urbanization, globalization, and westernization process are directly influenced on puberty rites to degenerate from Sri Lankan Culture, Cultural practices like *Yaga*, *Shanthi karma* are gradually disappearing from society with the feeble economic strength of peasants, Low cast people like *rada/Hena* (who are doing Dhobi work) are not engaging with their traditional occupations can be considered the **findings** of this study. Conclusion: The puberty rites played major role to give a sexual knowledge and self control in a technologically poor society. But current society pays less attention to this kind of traditional customs. The puberty rites have been giving informal sexual knowledge to the young generation. Especially some restrictions are imposed by these cultural events to make self control. Finally degeneration of these cultural practices partially causes to create many social problems like unnecessary pregnancies and abortions.

Key words: Adolescence, rites of passage, Socialization, Sexual education, Cultural Values.

A Study into the Implementation Related Problems of Bilingual Education in Sri Lanka

N.A.L.A. Nettikumara¹

Bilingual Education (BE) started in Sri Lanka in 2001 is still in its infancy. The percentage of Bilingual schools in Sri Lanka is 17.5 and this indicates that its progress is slow. Reasons for this slow progress are worth studying. BE is a new initiative in Sri Lanka and therefore teachers face many problems when it is put into implementation in classroom environments. Some of these problems cannot be solved by teachers or the school itself. They need effective supportive mechanism to help them to solve the problem. This research is an attempt to understand the problems faced by the teachers and the problems encountered by the supportive management network in the country, in order to support in effective implementation of BEP. In depth interviews with 16 BE teachers who teach Science and three top level educational managers responsible for the implementation of BE were carried out. The data gathered were analyzed making use of qualitative data analyzing techniques. Findings revealed that the major problems teachers face were: a) unavailability of curricular materials on time, b) lack of training on CLIL, C) lack of quality teaching materials.

Analysis of data related to top level educational managers revealed that there were lack of communication among different institutions, absence of written policy for bilingual education and in adequacies in qualified professionals to conduct teacher training programs.

It is recommended that introduction of a written policy document is a necessity with proper communication and coordination in the implementation, recruitment of qualified professionals and keeping them in a proper carder are essential for the upliftment of BE in Sri Lanka. Formalizing the distribution procedure of the textbooks, organize the training programs for teachers to introduce CLIL teaching strategies and provision of reference materials are the recommendations to address problems of teachers of Bilingual Education.

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A Study of The Social Role of “Omens” in Rural Cultural Sri Lankan Communities (With special reference to Mirigama secretariat division in Gampaha district)

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Culture is a powerful human tool. Culture includes knowledge, beliefs, art, law, morals, customs, capabilities and habits acquired by man as a member of society. Basically culture is divided into two categories. Those are material and non-material culture. “Omens” are a part of non-material culture, inclusion Enigmatic beliefs. Rural Sri Lankan communities have their own special cultural features including magic, faiths and beliefs. Omens are viewed as a sign from the natural world that delivers a message of some sort. Typically this message is seen as an indicator of the approach good or evil events. Omens are represented by people, animals, trees, dreams, as well as astrology. This study was based on the social role of omens.

The main objective of the study was to identify the social functions of omens. Whether the functions are good and bad or visible and invisible.

The survey and functional methods were used to gather primary data. Data was collected through observation and interviews because qualitative data is very important fact for this research. The Sample was selected using random purposive method according to non-probability sampling theory. The sample consists of 20% of people including age and gender based. Thalahena village in Giriullagama GN division in Mirigama secretariat division of Gampaha district was selected as the research area.

The main finding is that many good social functions are fulfilled by omens in Rural Cultural Sri Lankan Communities. In this regard, omens have to helped to,

- Develop co-operation in rural Sri Lankan communities.
- Help to Bond with their own religion.
- Understand about weather.

These benefits of omens have also motivated people to love protect nature.

Key words: Omens, Culture, Rural

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A study on author names authority control related to online public access catalogue (OPAC) of national library, Sri Lanka

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The limited definition of the term “library” existed in the past was expanded widely at present due to electronic information media inherited by modern technology which has become “the information distribution center.” This technological change has resulted in effecting various development change in library activities. The card catalogue which facilitated the easy search of book in a library has improved by way of electronic communication system and the internet, up to the level of online public Access Catalogue system at present. As a result of above facility, the reader who visits the library is capable of fulfilling his or her requirement speedily and efficiently with the adaptation of library catalogue authority. In order to provide and efficient service to the readers it is necessary to ascertain as to whether there is a proper authority control in the online public access catalogue in the library. The objective is this study observed as to whether the authority control is functioning properly in libraries in order to provide and efficient service to the readers. This study is concerned about the in house online public access catalogue of national library of Sri Lanka and its functions regarding author names (personal author name, co-operate author names) and to ascertain as to whether proper authority control is in practice.

While carrying out the study regarding the authority control of author names, participant observation method and questionnaire method was adopted while information and opinions were gathered presenting them with open ended questionnaires.

According to the study the functions in respect of the authority control online public access catalogue are in and unsatisfactory level at the national library of Sri Lanka. Weaknesses were observed in translation, transliteration, term spacing and differences in names etc. The functions regarding author names, authority control have to be streamlined introducing a proper comprehensive author name authority files, using correct transliteration method. It is conducted that, suitable software should be used and entering bibliographic data to be carried out with more care, using a separate form for transliteration.

It could be mentioned that the national library of Sri Lanka being the leading library in the country, it should adapt exemplary method to other libraries in the country in maintaining authority files and an authority of online public access catalogue in the future. Similarly, it is role of the national library to maintain the authority files constantly. National library in Sri Lanka Should set an example to other libraries in devoting on authority control. It is a national responsibility.

Keywords: Online Public Access Catalogue, Authority control, National library of Sri Lanka

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A Study on Awareness of Stock Market investors in Sri Lanka

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The investor is centralized character in an economy and stock market plays a major role of economic growth in a country. To minimize risk of investment investor should have good knowledge about capital market trading. This research considers about stock market awareness of the investors. The main objective of this study is to recognize the impact of stock market awareness on their investment. A structured questionnaire was used to reach this objective of the survey. The sample was consisted 150 responders who invest in the Colombo Stock Exchange. In the quantitative analysis, Likert-scale questions which describe the basic knowledge about stock market investment were used to develop an index regarding the awareness of the stock market. This research considers the differences in amount of investment, according to their awareness about stock market using the independent t-test between two groups; having awareness and not having awareness. Further, to recognize the factors which impact for the amount of investment used multiple regression model. Highest percentage of investors was male. 74% of investors were obtained A/L qualifications. Among them, 18% of investors had followed extra courses regarding to share market. 87% of investors used the savings for investment. 13% of investors were used non saving sources such as credits and real assets. Most of the investors had other investment beside of stock market investment. 78% of investors were concentrated on ordinary shares. According to the index; regarding the awareness of the stock market, 12% of investors had higher awareness about stock market and 23% of investors had medium awareness about the stock market. 70% of investor's awareness was not in a satisfactory state. Independent t-test result indicates that there hadn't any difference on investment amount according to awareness of investors. To maximize investment benefit through minimize their risk; awareness of investment should be improved. Therefore Securities and Exchange Commission ought to be involved to expand the informal educational ways which are familiar to investors.

Keyword: Awareness, Investment, Risk, Stock Market

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A Study on Community Based Organization and Rural Development (With Reference to Warakapola Divisional Secretariat)

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Community based organizations (CBO) can be defined as non-profitable organizations operating in the civil society and focused to achieve certain objectives. Approximately, 52 CBos are proceeding in Sri Lanka. This study is “to identify whether there is a rural development of the community by conducting CBOs. For the research primary data and secondary data have been used. The research based on one organization which is Dead Donation Society. Primary data was collected by 20% of the total population from Niwatuwa Gramaniladaree Division. Collected data was analyzed by the descriptive statistical method. According to this study CBO have been supported to the rural development of the community in the context of house building 34.6%, education of the children 7.8%, water supply 11.5%, cultivation 34.6% and sanitary facilities 11.5%. Finally it could identify that there were 17% participation of the male sector when conducting the CBO.

Key words: *Community, Organization, Rural Development*

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A study on Multiple Intelligence of school students in Sri Lanka (In Gampaha District)

K. D. Nathalia Fernando¹¹

Each person had a number of different forms of intelligence in different levels according to the theory of Multiple Intelligence. Nowadays in educational field Multiple Intelligence (MI) plays a vital role. Application of MI theory helps students to understand how they are intelligent and teachers, school administrators and parents can better understand the learners of them. As a result it was important to study the Multiple Intelligence (MI) of school students in Sri Lanka. Therefore Objectives of this research were, to identify the different MI of students and how MI differ in terms of gender among the school students in Sri Lanka. Selected sample was 144 school students from grade 11 in Gampaha District as respondents. To collect the data questionnaire was used. Data were analyzed by using simple statistical methods. The findings of this study showed that all intelligence were possessed by the students either in high, moderate, or low category. Intrapersonal intelligence became the highest intelligence among the nine types of MI. Moreover, other types of MI in high category were interpersonal and existential intelligence. The other types were in moderate category, were visual-spatial, verbal-linguistic, musical-rhythmic, logical- mathematic, bodily-kinesthetic and naturalist intelligence. In terms of gender, the study revealed, male students significantly possessed higher in bodily-kinesthetic, intrapersonal and existential intelligence. Female students were significantly higher in intrapersonal, interpersonal, naturalist and existential intelligence. Both genders higher in intrapersonal and existential intelligence. Male students are higher than female students in logical-mathematic, bodily-kinesthetic and existential intelligence. Female students are higher than male students in verbal-linguistic, visual-spatial, musical-rhythmic, intrapersonal, interpersonal and naturalist intelligence.

Keywords: multiple intelligences (MI), school students, gender

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A Study on SANASA Banking Service and Economic Activities of Rural People (With Reference To Neluwa Divisional Secretariat)

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SANASA bank has a main place among other banks which is being helped to rural people. The main purpose of this bank is to provide loans and investments for economic activities. There are many SANASA associations in rural level and this bank is being helped to get facilities to people who are getting lower income. This research is focused “to identify whether there is a contribution to economic activities of rural people by supplied service of SANASA Bank”. For this study, primary data and secondary data have been used. Primary data have been used collected from sample of 52 families (20% out of 260 families) from Batuwangala Grama Niladharee division by using questionnaires and interviews. The collected information have been analyzed under the descriptive method. According to the study, small scale and medium scale loans are supplied for cultivations of lower level income families. 55% of families have invested the credit loans provided by this banks on economic activities such as self employment, tea plantation and purchase tea plants. 45% of families have invested those loans on non economic activities. According to statements 75% of families given by there are less obstacles in SANASA bank rather than a loan from other banks in obtaining a loan. The reason is that the SANASA bank which is located in a particular Grama Niladharee Division is providing loans only for those people who are living in that particular Grama Niladharee division. Because, mostly SANASA associations are established in rural wise and any person can become member of it and then they can anytime apply for a loan.

Keywords: SANASA Bank, Rural economy, Rural people

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A Study on the Impact of Adverse (pollution) Media Messages on Antenatal/Prenatal Groups”

Niroshana Thambawita¹, Mapa Thilakaratne

Problem of the Research -Dominent problem in relation to this research is whether adverse media messages create an impact on prenatal groups? If so how? Whether adverse media messages communicated through television, radio and print media affect mental and behavioural patterns of an individual. **Hypothesis**-In the context of the competitive market and other agenda, messages communicated through television, radio and print media have taken an adverse turn creating an impact on individuals at the prenatal stage. Daily occurrence of these adverse impacts may create harmful effects on mental and behavioural patterns of women at their prenatal stage **Objectives of the Research**, The prime objective of this study is to identify the impact of adverse audio and video messages communicated through media (television, radio and newspapers) on women at their prenatal stage recognizing it to be a pioneering study in the field of communication and media studies, Discover new knowledge, since no literal study has been conducted on mental and behavioural effects of adverse media messages, Raise public awareness on adverse media messages and their effects on receptors, Make aware the target groups on how to avoid the communication of adverse media messages during their prenatal stage, Since identification of adverse media messages is vital for social development, build up discourse within the society on this issue. **Fields of Study** - *Medialogy, Sociology, Psychology, Biology, Socio Psychology, Obstetrics, Buddhism and Philosophical approach***Method of Data Collection (Case Study) - 25 Receptors**, Receptors have been randomly selected. However, measures have been taken to choose receptors in their latter period of pregnancy; from the stage of feeling the the first movements to the stage of delivery, and use mass media, Receptors have been selected hospitals in Colombo, Kalutara and Gampaha Districts within the Western Province, The receptors have been selected to cover a varied range of diverse ethnicities (race/ religion), ages, levels of education, family backgrounds, occupations, experiences as well as having elder children and other reasons,*Method of Collecting Data*, Primary data collection, collection of data through secondary sources, Formal interviews, Analysis of case studie**Observations, 01;** It has been confirmed through research that the process of a child’s cognitive development takes place from conception till nearly three years after birth. Therefore, it could be observed that the stimulants of a mother at the prenatal stage will directly and indirectly affect the foetus. Furthermore, the effect of external communication situations on the foetus too has been observed. **02;** It has been observed that the baneful hormones generated as a result of mental stress situations at the prenatal stage may dilute in blood and reach the foetus through the umbilical cord ultimately affecting the cognitive development of the foetus. **03;** Furthermore, adverse media messages may act as catalyst to women with mental disorders including anxiety, Depression and Schizophrenia and cause miscarriages. **04;** There is a possibility of adverse media messages may act as catalyst against groups of extra sensitive or with negative personality traits and extremely loyal towards religious or cultural beliefs. Ohterwise, the continuoyus stress generated through media messages may cause long term impact on the foetus.

Key words: Adverse, pollution, Antenatal, Prenatal, Media

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A Study On The Awareness Of The Public On Reporting Fundamental Rights Violations (A Case Study of Mudungoda Grama Niladhari Division in Gampaha Divisional Secretariat)

M.D.C.Prasadi¹

Fundamental Rights are included in the Constitution of Sri Lanka. There are several institutional bodies which act against violations of Fundamental Rights. This study is focused on examining whether the public possesses a substantial awareness about the functions of institutions mandated to act against and resolve violations of Fundamental Rights which the main objective. Sub objective of this study is to make public aware of Fundamental Rights, institutions to which they can report violations, and how to get legal assistance. Primary and secondary data have been used for the study. Primary Data were gathered from questionnaires distributed among randomly selected sample of 75 residents from Mudungoda Grama Niladhari Division in Gampaha Divisional Secretariat and they were interviewed individually in order to get an idea as to their personal attitude regarding the research problem. The secondary data have been collected from related articles, of printed media, websites, and books. The research is mostly based on quantitative data while qualitative aspects also have been revealed for some extent. According to the study, it was concluded that the study revealed that 73% of the sample do not possess a satisfactory awareness about the institutions where they can report or resolve violations of Fundamental Rights.

Key Words: Fundamental Rights, Violation, Awareness

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A study on the influence of Electronic Media towards criminal behavior within the process of crime reporting (with reference to welikada prison)

W.A.K.U.A.Lakmali¹

Presently a grave tendency of crimes being increased day by day in the country has been observed from the recent past. Although penitentiaries, social sanctification institutes, police service for securing public peace are available and regular discourses are being endured within the society regarding punishment, continuous heightening of crimes could be observed in the society as an unvarying routine. Communication media remains at a foremost stand among other information transmuted systems. Out of them mass media institution play a distinct role in the process of information dissemination. Despite the fact that the war which existed over a period of thirty years has come to an end, it could be observed that crimes are intensely, escalating continually. Accordingly, this study was conducted with reference to Welikada prison in order to ascertain the extent of influence generated by electronic media regarding criminal conduct within the process of reporting of crimes.

The study problem is to ascertain as to how the reporting of crimes by electronic media will influence the criminal conduct. Criminal conduct that emerges in individuals causes backwardness of the society. The main objective of this study is to identify whether crime reporting by electronic media has had any impact on creating backwardness in the conduct of the modern society. It could be concluded that crime reporting by electronic media has caused an impact on the conduct of society.

Primary data were collected through questionnaires from 60 data contributors. Qualitative data were studied under case study. Finally it could be concluded that Electronic media had caused an impact on the society by reporting news regarding crimes. In this main finding regarding electronic media influence the increase in rape and robbery carried out, electronic media programs have increased the number of criminals operating in Colombo, in addition also impact of print media.

Key words: Crimes, Reporting, Society, Media

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A study related to Information Services in respect of the Coconut Industry of Sri Lanka and the manner in which the relevant Industrialists use such services.

R.A.P.S. Senevirathna ¹ , Piyadasa Ranasinghe ²

There is no field that could be seen inhuman activities where “Information” is not considered as important. Exchange of information services and communication are essential factor for the existence of services namely Health Services, Agriculture, Banking Field, Industries and Education. The mechanism of the required services should be activated through Libraries, Information Centers and Information Officers. When the coconut industry is considered, it appears that the need of information by the people engage in the industry is ample. Industrialists require information regarding the export market, Local and foreign prices, market economy and the demand for productions, packing details and more information about machinery and transport charges.

Accordingly, it is important to examine about the information provided towards the community engaged in the coconut industry by the Coconut Development Authority which is only institution authorized to give information regarding the industry. The objective of this study is to ascertain as to what are the information services provided by the Coconut Development Authority and its library at present towards the community engaged in the industry and how the industrialists in the field make use of such information.

Coconut Development Authority was selected as the sample being the main institution for the industry. Data were collected from the Information Officers, The Librarian and 200 people who are engaged in the coconut industry through questionnaires and by interviews when considered necessary.

It was made clear that information is given to industrialists through many sources such as the website of the Coconut Development Authority, Industrialists publications, Field officers and Advisors, Industrial fairs, Exhibitions, Training and awareness programs, Newspaper articles and Advertisements and Telephone inquiries. It was concluded that information provided by the website of the Coconut Development Authority, Institutional publications, Advisors and Field officers, Training programs, Telephone inquiries, Newspaper articles and Advertisements is used by the industrialists and that they get information through Exhibition, Industrial fairs, Seminars and Meetings constantly but that they do not make use of the services of the library to get information.

The present information services should be updated and its mechanism should be further developed. Information provided by the website should be updated constantly while the industrialists should be encouraged and guided to gain information through Exhibitions, Industrial fairs, Seminars and Meetings. It could be proposed that the information services provided by the library should be further developed and new types of information services should also be encourage to use the services of the library.

Keyword : Information Services, Coconut Industry, CDA (Coconut Development Authority)

Accountability in Local Government Institutions of Sri Lanka: A Study of the Hali-Ela Pradeshiya Sabha

Dodan Godage Kanchana¹

Accountability was a basic argument of establishing the local government system in Sri Lanka with some adjustments in time to time. Currently, accountability does not mean that just being showing the accounts to the hierarchical institutions and the local government institutions have to be accountable in a pluralistic way. In other words, there are dimensions of accountability namely; Political accountability, Legal accountability, Administrative accountability, Professional accountability and Social accountability. All these dimensions of accountability are questionable in local government institutions of Sri Lanka. This study has questioned that why and how these dimensions of accountability are in problematic by giving special reference to the Hali-Ela Pradeshiya Sabha which is being challenged by a lot of criticisms due to inability of maintaining the proper accountability. This Hali-Ela Pradeshiya Sabha is located in Badulla District, which belongs to Uva Province. The legal background of all establishments of the Pradeshiya Sabhas is same but the way of functioning is not equal at all. Accountability issues in Pradeshiya Sabhas may arise not only because of the laws and regulations, structure, selection process of members, human and physical resources, etc., but also because of institutional culture, population matters, ethnic diversity and environmental factors. Especially, the institutional culture always depends on the characteristics such as workers' attitudes, environmental surroundings, ethnic diversity, etc. The Hali-Ela Pradeshiya Sabha area has been selected as the study area since it includes all these ethnic and cultural diversities and therefore the people's needs are also complex in nature. The Hali-Ela Pradeshiya Sabha has to be proactive to provide the services to the people by ensuring the accountability. The study conducted based on the qualitative data. In data collection, content analysis and case study method have been used. The use of case study method to analyze the critical information related to the practical scenario of the accountability of this institution was helpful. The descriptive analysis method has been used in the data analysis. The findings show that all forms of accountabilities have been challenged due to inadequate communication among political representatives, administrators and people in the Pradeshiya Sabha area. Not only due to political and administrative conflicts for the Pradeshiya Sabha functions, there cannot be seen collective actions towards enhancing the accountability while providing a quality service delivery to the public.

Key words: Accountability and its aspects, Local Government Institutions, Due Process, Challenges, Hali-Ela.

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An Evaluation of Transport Related Government Web Sites in Sri Lanka

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A Website is a mirror of the institute or the company. It has to play the main role of displaying vision, mission, tasks and everything of the institutes. So that, many government institutes use Websites to disseminate government information to the public. The main objective of the study was to find out whether the government Websites provided relevant information to the university community through their Websites. This study aim to find out solutions for five research questions, what information is required by university community, what sort of information is available in the government Websites, do the Websites provide relevant information to the university community, what kind of information services are provided by the government Websites, is there a better way to present government information through the Websites.

In this study, both qualitative and quantitative methodologies were applied. Mainly this is a survey research. To collect primary data for the study, interviews, desk research and Website evaluation tools were used. 125 interviews were conducted among university staff and undergraduates to find out required information from the government Website. Desk research was conducted to collect existing information on the Websites. Sampled government institutes were evaluated using evaluation tools like WAVE, Google Page Speed and Hubspot Marketing Grader.

After analyzing the data and evaluating Websites, it was realized that government institutes are unable to reach the expected level of the university community by providing online services and relevant information. There is a high demand for online services on government Websites. But a very few government Websites are provided online services for the users. Most of the government Websites were put on lower grade by the evaluation tools.

In order to fill these discrepancies, some major moves are suggested to upgrade the rank of government Websites which are, following WCAG and proprietary accessibility guidelines, establishing formal web accessibility laws and guidelines, upgrading online services, training to web masters, recruiting a centralized post called web manager for all government institutes.

Keywords: Government Websites, Sri Lanka; Transport Related Government Websites; Websites Evaluation; Government Information; Sri Lanka Government

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500 Assessment of Satisfaction of the Participants in 16th Colombo International Book Fair

P.K. Jayasekara

The Colombo International Book Fair (CIBF) has been, the Sri Lanka's premier national book fair organized annually by Sri Lanka Book Publishers Association since 1999. The 16th CIBF was held at the Bandaranaike Memorial International Conference Hall (BMICH), Colombo, Sri Lanka, from September 10th to 17th 2014 from 9.00 am to 9.00 pm., which comprised over 400 stalls consisted with local and foreign publishers. Other than selling books with discounts, it provides opportunities for author and reader discussions, book signing, great variety of food stalls and some other carnival-like activities. The number of participants to the CIBF is not good evidence about the successfulness of it. User satisfaction is one way criteria to measure the successfulness. Thus, objective of this research is to measure the user satisfaction about the 16th CIBF. Data was collected using an online questionnaire which developed using Google forms. The target group was the members in a Facebook group called "Pothe Kiyawana Aya" that consists of 54,901 members in September 2014. The objective of this group is to share ideas about books among friends around the world. The URL of the online questionnaire was published in that Facebook group to get responses. 526 people have responded to the questionnaire within a one week period. 42% respondents were not satisfied with the support provided by the staff in the stalls and 36% said that they received satisfactory support. The overall satisfaction about the 16th CIBF was 37.9% and nearly half of the visitors (51.6%) was not satisfied about it. Overcrowding was the major reason behind less satisfaction. Increase the duration of the exhibition and spacious stalls will reduce the overcrowding. The organizers must develop plans to reduce queue time at the entrance and at the cashier and providing proper parking facilities will help to increase the customer satisfaction.

Key words: Book Exhibition, Book Publishing, Colombo Book Fair

Availability of resources in National schools and Provincial schools of NWP for providing a better educational service

R.N.H.M.Saman Jayarathna¹.

Education affects the development of a country. All the resources should be provided to schools so as to give an appropriate education to the child.

The expected aims of this study are to see the process of providing resources to schools, to study whether the schools have got resources appropriately and to study the results of utilizing resources. This study has been done using the process of survey. The whole sample of twenty five consists ten principals, ten teachers and five In service Advisers. The principals and teachers are selected from five national and five provincial schools in NWP. Questionnaires, interviews, circulars, books, magazines and letters were used in order to collect data from the sample.

Data have been analyzed in a qualitative manner. According to this study, the academic and non-academic staffs of some schools are not sufficient but over staffs can be seen in some schools. Distributions of financial resources are unequal. Distributions of physical resources are also unequal. Rules and regulations that should be implemented are not being implemented. Methods which have been found out by the authorities to solve the problems of physical and human resources are not practical and they are unsuccessful. There is a surplus in national schools for resources while a deficiency seems in provincial schools. Most probably the central government provides resources for national schools while provincial councils take the responsibility of providing resources for provincial schools though the situation changed slightly some times.

The main conclusion of this study is that there are some shortcomings in attention of authorities upon the availability of resources in schools.

So a common policy should be carried out in appointments and transfers of staffs and minor staffs, distribution of physical and financial resources and carrying out rules and regulations.

Keywords: Availability, Resources, Education, School,

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Awareness and usage of E-library services by members of academic staff in University of Kelaniya

K.A.T. Chamara¹, Dilini Bodhinayaka²

Modern Libraries have transformed in to digital and virtual libraries where books, journals, and magazines have changed into e-resources. Therefore, libraries intend to disseminate their information through e-library platform. Accordingly, University of Kelaniya library initiated an E-library with number of E-databases, E-books, E-journal articles and necessary study materials.

The purpose of this paper is to find out level of awareness and usage of E-library by members of academic staff in the University of Kelaniya. A questionnaire was used as the main method for data collection and was supplemented by interview. 178 questionnaires were distributed using stratified random sampling method and also a probabilistic equation to measure the sample size and the proportion of strata.

Most of academic members use E-databases and E-journals to full fill their research needs and E-books are used for their learning and teaching activities. The findings revealed that the academic members of faculty of Sciences show the highest awareness and use of e-library services and lowest results belongs to the faculty of Humanities. It is observed that high awareness had led to high levels of usage of e-resources. It is recommended that more awareness programmes and hand on trainings should be arranged for the faculties identified.

Key words: E-Library-University of Kelaniya, E-Databases, E-Resources, University Libraries-Sri Lanka, E-Books

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Ayathurai Santhan's *The Whirlwind* as a writing of Victimhood

Arivarasy Muthulingam¹

The objective in reading Ayathurai Santhan's *The Whirlwind* is to form a discussion of how Santhan has constructed the narrative of violence during the IPKF rule in Jaffna peninsula as an instrument in the writing of history. The history Santhan strives to construct in *The Whirlwind* is 'the barbarity of the alien', 'pride of soil', and 'the legitimacy of battle'. The very force IPKF who comes to promote the peace ultimately violates them. The novel is influenced by true incidents, thus claiming a historicity and the legitimacy to construct the 'reality of conflict'. *The Whirlwind* is about the powerlessness and victimization of the particular community, their lack of strength to transform their politics or to question their miserable events that happened around them. The use of the narrative as history often objectifies the people, geo-cultural landscape and the cultural and religious background of people especially the Hindu and Tamil culture. As the present atmosphere does not provide culture which has been preserved as wealthy, Santhan shifts the narratives to the past very deliberately to overcome this limitation. There is a sense of belongingness to the soil and people are proud of the culture, heritage and life-style. The novel is a harsh commentary in neocolonial politics of India. They kill the value system of their own country and the mission which upheld the ideology of non-violence. It shows the failure to be peace-makers instead crushing the freedom of people in their neighbouring country. The study is geared at demonstrating the barbarity during the IPKF rule, sense of belongingness among the natives and the justification of the conflict. As a descriptive study, the text under scrutiny will be used to illustrate this end.

Keywords: solidarity, national history, belongingness, neo-colonial politics

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***Bṛhajjātaka* and the Making of Horoscopy**

Virendra Singh Bithoo¹

An important transformation is seen in the branch of science in the Gupta period. The area of the science mostly consisted of chemistry, medicine, astronomy, astrology and architecture. The idea of a well versed person is based on his excellence in all fields of science. During this time, many mathematicians and scientists gave their theories and reached the zenith, and Varāhamihira was one of them. He was born in Avanti in 505 A.D and was patronized by Yaśodharman Vikramāditya of Malwa. Bhaṭṭotpal, commentator of Varāhamihira's *Bṛhat Saṃhitā*, wrote on his excellence of writing, "the redactor of entire Jyotiḥśāstra". Varāhamihira includes points of all previous authors and considers astrology based on the *āgamas*. The term *Jyotiḥśāstra* is elaborated in Varāhamihira's text *Bṛhatsaṃhitā*. He divides it into three *Skandha* or parts: the first branch is called Tantra and deals with the mathematical calculation of heavenly bodies; the second known as *Horā* treats horoscopy or the casting of horoscope; the third is called *Aṅgaviniścaya* based on natural astrology. In the *Saṃhitā*, all these parts are discussed with some additional details on medicine, gems and stones, good and bad animals, and the planets and results of their appearance, architecture, manufacture of perfume, eclipse, rainfall etc. There are other important works by the same author. *Pañcasiddhāntikā* is a well-known work on Tantra (mathematical calculation of astronomy) and *Bṛhajjātaka* deals with horoscopy. This paper will focus on the critical study of *Bṛhajjātaka* and the process of casting the horoscopic chart. *Bṛhajjātaka* talked about several signs of the zodiac, effect of different planets in these signs, planetary division and subdivision of life known as *Daśās* and *Antardaśās*. There different *RājaYogas* or the birth of kings, and ascetic *Yogas* have also been discussed. This process is based on the calculation of rising signs in different places at different timings. Varāhamihira tells us that an astrologer is one "who knows both text and meaning of the works on mathematical astronomy, natural astrology and horoscopy." All these aspects will be critically dealt with in this paper.

Keywords: Varāhamihira, Astrology, Horoscopy

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Changes of Physical Environment in the Areas of *Pinus* vegetation in Sub Mountain Grass Lands: Special Reference to Imbulpe Divisional Secretariat Division in Balangoda

H.A.S. Arunashantha¹

The *pinus* vegetation has been introduced to the sub mountain upper catchment area on 1953 in Sri Lanka. Sub mountain grass land was one of the largest vegetation in upcountry lands. Changes of Physical Environment rapidly increased with the expanding deforestation of *pinus* cultivation. The main research objective was identifying the impact on major physical changing component in *pinus* reforestation area. It has become a major challenge for equilibrium in upcountry area. Belihuloya, Niththamaluwa, Landuyaya and kumburutheniwala beat were selected as the study area. Primary data collected by questioner and semi structural interview with selected important sectors. As well as collect data by field observation. Secondary data collected by using books, magazine and web pages. Data analyzed by using descriptive analyzed method and maps. It was identified changes of physical environment spread of *pinus* vegetation. It has caused for agriculture in this rural area. The major findings are increasing soil erosion, changing of drainage system in this area and it was effected to rural economic and their activities directly and indirectly. It is need to regularly and systematic institutional plan for mitigate physical environment impact from the *pinus* reforestation in Sub mountain grass land area. Introduce suitable local reforestation trees will be a possible solution for this physical environmental changes related to *pinus* reforestation area by responsible organization.

Key words: Pinus vegetation, physical changes, Sub Mountain grass land, reforestation

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Climate Change Adaptation in Water Management for Agriculture: A study based on Suriya Ara, Wijithapura, Usgala in Monaragala District.

Thisara kandambige¹

Sri Lanka's climate is characterized by the tropical monsoon system. The rainfall pattern is of primary significance in defines the island's climate. Where most part of the year experiences scarcity of water for a considerable time period. It is evidence the entire dry zone is highly vulnerable to dry spells or occasionally drought conditions. Not only drought but also are dry spells serious problem setback the economic and Agriculture of that region. The most of Dry areas agriculture is practice with rain fall and irrigation water supply to overcome seasonal water scarcity. But in the Monaragala such water systems are limited. Most prominent agriculture systems are chena cultivation and home gardens. Climatically this area receives of large rain fall on October to November, while rest of the year expediency water scarcity. In seasonal time to overcome the agriculture problems, many water utilization systems have been established by government and NGO's. Domestic wells, Rain water Harvesting Pond systems (R.W.H.P), Rain water tank, Common wells, Tube wells, Irrigation systems and other water utilization projects are among of them. This research is examined how far these water utilization programs affect on climate change adaptation in water management for Agriculture. This is by product of a survey undertaken in 2015 in Monaragala district Wijithapura,Usgala selected 100 frames were taken on the samples (Thanamalwila DSD), The methods of data collection in survey are questionnaire, structural interviewed, in-depth and open ended interviews and key informer interviews a focus group discussion, generally observation were done to identify the environmental condition such as small tanks, soil water, ground water, vegetation and streams. It was found that related to R.W.H.P Systems utilized 40% farmers in the area in additionally Irrigation systems 100% , Rain water tank 80% and Common well 45% water utilization for agriculture. Characteristics of R.W.H.P Systems water utilization in the area 100% for agriculture. Main while 45% farmers are multipurpose processes such as agriculture and animal husbandry and propose of the ponds 36.9% replied for full irrigation and supplementary irrigation. Successfully highly depended on the location of water sources, some sources are active throughout of the year. Some are active only limited period because surface water storage is very limited.

Key Words: Drought, dry spells, Ground water, Irrigation system, Rain water harvesting Ponds.

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Colour associated thermal perception: Manifestation and contributing factors with reference to red and blue

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Theory of colour, a long-established tradition of artists and painters, distinctly differentiates a duality between the impact of warm and cool colours on human beings. The lack of scientific and statistically substantiated knowledge on aforesaid colour associated thermal perception (CTP) deems to hinder its optimum integration in built environment.

Current interdisciplinary investigation seeks scientific explanation on the nature of manifestation and contributing factors of CTP with reference to a warm colour (red) and a cool colour (blue). Exploring parameters of three different disciplines, hypothesized potentials of CTP to manifest as a psychological response, a biological response altering core body temperature or an actual thermal sensation caused due to heat radiation emitted via coloured surfaces were tested. A crossover experiment was executed with a sample of healthy, normal sighted, male undergraduates (n=111) selected via stratified simple random sampling (age 19 – 30) using two colour workstations (red and blue) under controlled laboratory conditions.

CTP was rated in a 5- point Likert scale while the induced feelings, emotions and preference to each colour treatment were recorded via a questionnaire survey. Temporal artery temperature (TAT) of subjects and the surface temperature of work stations (SFT) were recorded through infrared thermal monitoring.

Substantiating colour theory, subjects demonstrated a propensity to perceive red as warm/hot (64.2%) and blue as cool/cold (59.3%). Complex sampling ordinal logistic regression model testing the significance of 18 parameters revealed that CTP neither manifests due to a fluctuation in core body temperature nor as an actual thermal sensation. CTP is a psychological response characterized by common as well as colour specific factors. CTP of both red (RTP) and blue (BTP) were statistically explained by the psychological states induced by each colour, pre-conceived learnt ideas influenced by education, and subjects' preference. One's favorite colour and religion were found to be influencing RTP while age and surface temperature of the applied colour influenced the BTP.

Based on the revealed nature of manifestation, integration of CTP in built environment to psychologically manipulate the perceived thermal environment to achieve the desirable thermal milieu is highly recommended.

Key words: Colour associated thermal perception, Infrared thermal monitoring, Likert Scale, Temporal artery temperature,

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Comparative analysis on the impact of external compulsions and domestic politics of Sri Lanka during the Human Rights allegations issues of it in 1983 and 2009

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Sri Lankan government's 2009 military victory over Liberation Tigers Tamil Elam and Sri Lankan government's repression over Tamil minority during 1983 communal clashes caused the origin of United Nations Human Rights Council Resolutions against Sri Lanka's war crimes and human rights violations during above periods. The research problem is to analyse trends and developments of Sri Lanka's dealings with above two situations and also to analyse the behavior and impact of domestic politics of Sri Lanka and external compulsions on the two situations in 1983 and 2009.

Secondary data collected through data triangulation method available in both printed and electronic form in various data sources such as historical records, government publications, books, interviews, speeches, and web will be analyzed using theories through a deductive content analysis. It will test prevailing theories in different contexts when compare the categories during different time settings. It will suggest how the existing theory could be developed in order to explain certain new emerging data categories not fit in to the existing theoretical concepts independent of the theory. Content analysis evaluate document texts and to test theoretical relevance to understand data more comprehensively and scientifically. This is a qualitative research guided by theory.

In both 2009 and 1983 contexts, the domestic politics of Sri Lanka persuaded the policy makers for voluntary and involuntary defections from international agreements to ensure their political survival creating hostile situations constraining their international survival. Neorealist explains the smaller powers are constrained by the external pressures whereas domestic political analysis explains the domestic constraints of the decision makers. Both governments failed to address the problem successfully in 1983 and 2009, but the present government will overcome the September 2015 United Nations Human Rights Council Resolution due to its qualitative efforts on establishing good governance that are already appreciated by international community.

Key words: External compulsions, Domestic politics, Human rights, Sri Lanka

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Competitive Emergence of China and India and Autonomous Existence of Sri Lanka.

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Paper will discuss the Competitive Emergence of China and India and Autonomous Existence of Sri Lanka. China and India are arising of politics, economics and military sections. It is influencing to autonomous of Sri Lanka who is small country in region of South Asia. All of these countries are in Asiatic state. While china and India most power full arising state in this region. Both countries of the world, which china and India have self-built economy and military power. From recent period, global economic capability is being transferred to Asia china and India. Also china and India have built military power to protect more than other countries all capability for their motherlands. There is challenge for Sri Lanka autonomous among such China became closer friend of Sri Lanka last ruling period. India was suffering from ideological conflict about that. The present government is improving aliment between India and Sri Lanka. China became a main development partner of Sri Lanka. It was a main reason to intolerance of India. This reason Sri Lanka had to give large number of profit margin to China. Actually speaking it is that one way pump system.in this context Indian ideology is main both power full countries. Factor to determine international affairs. If Sri Lanka deal with only China Sri Lanka able to isolate.in international society. In this context Sri Lanka implement non-alignment foreign policy will be able to conduct successful foreign affairs between India and china.

Key Words: Autonomous, competitive emergence, ideological conflict, china, India, Sri Lanka

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Conceal Communication via MP3

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Hiding messages for various security purposes have become highly interesting topic on now a day. Encryption provides the ability of data hiding. With development of the technology, people tend to figure out a technique which is not only capable in hiding a message, but also capable in hiding the existence of the message. The current study is conducted in order to hide a text message in an MP3 file. The major aim of this research is the ability to hide text message in MP3 and retrieve the hidden text message. The research is introduced a new system called StegMP3 v1.0. Steganography of mp3 is more challenging due to wider dynamic range of the Human Auditory System (HAS). Research objectives are secrecy, verification, truthfulness, assure unapparent perceptual transparency of mp3 file (cover object) and the object covering secret messages and send/receive mp3 files. Least Significant Bit (LSB) is the core tactic which changes the last bit from a byte. This system doesn't change the mp3 file and doesn't increase the size of the carrier file. Thus, the existence of the message cannot be detected. MP3 consists of packets and each packet includes header and data. The system uses unique approach to guarantee the original quality of mp3 and secrecy of the message. The system facilitates to enjoy the music while processing. The system is evaluated by conducting a survey among IT professionals. The program quality has been accepted 84.37% and 89.59% accepted that the program like to be available in the internet. This program is suitable for safe and careful preservation of sensitive records. The StegMP3 v1.0 is a free, simple, bugs free software tool new to the area. In future, the system should be upgraded with cryptographic involvement and increase the message capacity support with text files rather than text.

Key words: Steganography, HAS, LSB

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Cultural Validation of the Couples Satisfaction Index – 32 among Sri Lankan Adults

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In the field of marital and relationship counselling, the assessment of relationship satisfaction has become a vital component in therapy. In the Sri Lankan context, lack of a culturally validated psychometric tool to assess relationship satisfaction was identified. Therefore, the present study aimed at culturally validating the Couples Satisfaction index- 32 (CSI – 32) among Sri Lankan adults. The Sinhala translated version of the CSI-32 was administered to a sample of 105 participants between the ages of 19 – 45 years who were in a committed relationship for more than six months. The types of relationships assessed by this instrument included married, engaged, or dating. A cross sectional survey was carried out among the participants and the standard procedures for cultural validation of a tool were followed which included translation, back translation, expert panel review and a pilot study was conducted before data collection. Exploratory factor analysis was carried out to measure the validity of the Sinhala version of the scale. The findings indicated that the CSI-32 was proved to be reliable ($\alpha = .97$) and KMO value was at .93 in exploratory factor analysis. The reported findings suggest that this tool is valid to be used in the Sri Lankan population. Since this study was a preliminary step for cultural validation of CSI – 32 for Sri Lanka, a larger sample is suggested to be used in extending this study further. This validated tool can be used by professionals who are involved in marital and relationship counselling as a means of assessing the relationship satisfaction of the couple.

Key words: Cultural validation, Couples Satisfaction Index, relationships, marital and relationship counselling

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Cyber-crime and Law (Special Reference to Sri Lanka and India)

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New media is a catch-all term for all forms of electronic communication that have appeared or will appear since the original mainly text-and-static picture forms of online communication. The Internet is based on single technical standards that allow global communication. With the emerging use of computer technology, computer-related crime and cyber-crime have become a significant global challenge.

The computer is rapidly increasing society's dependence upon it, with the result that society becomes progressively more vulnerable to computer malfunction, whether accidental or deliberately induced, and to computer manipulation and white-collar law breaking. (Weeramantry,1998). Cyber-crime encompasses any criminal act dealing with computers and networks. Although businesses in developed countries are often most affected by the abuse of Internet services to facilitate cyber-crime, the topic is equally relevant for Asian countries.

This research is qualitative research. In this research need to get a picture about cyber-crime in India and Sri Lanka. And need to study Internet related laws in selected country. In this research studied International laws about cyber space and cyber-crime and also study Sri Lankan laws and Sri Lankan cybercrime cases. And found out new suggestions to minimize cyber-crime in Sri Lanka.

Key Words Cyber-crime, Technology, Internet, New media, India, Sri Lanka

Decomposition analysis of poverty in Sri Lanka: 1990-2010

Seetha Ranathunga¹

Poverty has always occupied a prominent place in the economic development agenda of successive governments in Sri Lanka since independence. This is evidenced by the fact that Sri Lanka had achieved the 1st Millennium Development Goal by 2010 despite the difficulties caused by the long-lasting ethnic conflict. However, the economic benefits of development have not been evenly distributed over the whole island. Regional disparities are large and have been a key concern. Thus poverty decomposition into growth and redistribution provides a better picture for analysing poverty situation in Sri Lanka as it examines poverty reduction through increases in mean income/expenditure or changes in relative income distribution. Therefore the main objective of this paper is to examine the decomposition of change in poverty in Sri Lanka within last two decades into growth and distribution effects.

Poverty decomposition has been calculated using the computational tool 'POVCAL' developed and distributed by the World Bank. National poverty changes were decomposed into growth and redistribution components following the method of Datt and Ravallion (1992), using disaggregated household expenditure data from National Income and Expenditure Surveys 1990/91 and 2009/10 in Sri Lanka. The decomposition of the poverty change was done using the poverty headcount ratio, the poverty gap index and the severity of poverty in Sri Lanka based on HIES data in 1990/91 and 2009/10 using national poverty lines for the respective years.

The results show that mean consumption in Sri Lanka has increased; therefore the growth component has contributed to significant poverty reduction within the period 1990/91 to 2009/10. Further, the results confirm that the significant poverty reduction in Sri Lanka is fully accounted for by the increase in mean consumption. This effect carried through to the other poverty measures as well. Although usually the redistribution component is negative, here it has a positive value, indicating that the redistribution component has dominated the growth component of the change in poverty in Sri Lanka over the last two decades.

Key words: Poverty decomposition, growth effect, distribution effect, POVCAL, Sri Lanka

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Demarcating Problem of Reference Boundary for Coastal Zone and Shoreline: The Case of Sri Lanka

A.G.Amarasinghe¹

“Coastal Zone” and “Shoreline” have become popular and widely used terms among environmentalist, policy makers and planners around the world from ancient times. Coastal areas have been identified as one of the geographical regions that consist with different types of natural resources which provide required impetus to economic, social, cultural and environmental development of countries particularly island nation like Sri Lanka. And also, there are evidences that over utilization of resources or unplanned use of coastal zones have already created different types of problems too. Coastal erosion, degradation of ecosystems and destruction of built environment are the main issues that have emerged due to over utilization of resources through shortsighted human activities.

Understanding the importance of the coastal region and the intensity of problems, protection and conservation the coastal environment has positioned at the forefront task of the government of Sri Lanka from 1980s. Establishing the Coast Conservation Department can be considered as the turning point of the sustainable utilization of coastal resources. Yet, the problems of coastal belt in Sri Lanka are still increasing. One of the main reasons leading to this situation is the uncertainty about the exact ground reference points for the Coastal Zone and the Shoreline.

It is natural that the boundaries of coastal zone and shoreline are changing spatially and temporally. The main objective of this paper is to discuss the reasons for change the concerned boundaries and adjoining problems. Field survey, library survey and interviews were used to collect data and basic statistics was employed to analyze data. Demarcation of exact boundaries would help to protect and pave the way to sustainable use of coastal environment.

Key Words: Coastal Zone, Shoreline and Sustainable Use of Coastal Resources.

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Determinants of Foreign Direct Investment in Nigeria (1970-2014)

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Foreign Direct Investment (FDI) has been at the center stage as a phenomena of discussion amongst international cum development economists since the breakthrough made by Hymer's Thesis in 1960 which serves as a basic reference in subsequent study on the Multinational Corporations (MNC). Therefore, there has been a continuous growing concern on research in the area of FDI due to globalization of markets and companies emerging to be internationalized. Also, the existing liberal regulations in various countries give rise to the influx of companies across borders in an effort to engage in FDI's. The issue of FDI determinants remains relative and debatable owing to different results found empirically. Asiedu (2006) suggests that in Nigeria, FDI is determined by large local markets, natural resources, infrastructure and low inflation but to Bakare (2011) the major determinants of FDI are attributed to political cum macroeconomic instability; while Okafor (2012) conclude that the key FDI determinants are real gross domestic product (GDP), interest rate, and real exchange rate. Therefore, the problem of ascertaining the real FDI determinants in Nigeria is yet to be unanimously established and that calls for further research. In this study, we use time series data from 1970 to 2014 so as to enable us capture the FDI determinants in Nigeria up to date. We employ econometric techniques and estimated the FDI model with exchange rate, real gross domestic product, money supply, interest rate, international trade and expenditure on education as explanatory variables. The result shows that the model has a perfect fit at the same time GDP, money supply, international trade and interest rate increase FDI inflow. Furthermore, almost all the variables entered behave in accordance with a priori economic expectation. We conclude that government should intensify on such policies that are likely to attract FDI and vice versa.

Keywords: Investment, development, economy

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Determining the Violation of section 31(1) of the National Authority on Tobacco and Alcohol Act: Regarding Alcohol Products

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Introduction: Sri Lanka was the fifth country in the South East Asian Region to sign the Framework Convention for Tobacco Control (FCTC). National Authority on Tobacco and Alcohol (NATA) Act No. 27 of 2006 is one of cost effective measures that Sri Lanka apply to prevent issues regarding alcohol and tobacco use since 2006 under the FCTC. Objectives of the Act, is identifying the policies on protecting Public Health, eliminating of tobacco and alcohol related harm through the assessment and monitoring and make provision discouraging persons especially children from smoking or consuming alcohol. This study is considered only section 31 (1) of the NATA Act, which included “A person not sell, offer for sale, or permit or promote the sale of any tobacco product or alcohol product to any person under twenty one years of age”.

Objective: To determine the violation of section 31(1) of the NATA Act, regards to Alcohol products.

Methodology: Cross sectional study design was used for the study. Observation method was the data collection method. Data were collected in nine districts ($n=45$ registered alcohol selling points) in Sri Lanka. Multistage sampling method was used to select sample from registered alcohol selling points. An observation check list was applied as data collection tool and volunteers between the ages of 18 to 21 were assisted (as decoy) to purchase alcohol from selling points.

Results: Results indicated that 93.3% registered alcohol selling points were violated the section 31(1) of the NATA Act.

Conclusion: Based on the study results, it is clear that implementation of section 31(1) of the NATA Act, was less successful. Implementation of this legal provision of the NATA Act, would be an enormous intervention to address alcohol initiation of adolescence in Sri Lanka. Therefore, it is essential to take actions for implementing section 31(1) by responsible bodies and authorized officers immediately.

Key words: NATA Act, Alcohol Policy, Alcohol Prevention

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Development of a New Biofertilizer System Using *Gliricidia* Plants Grown in Sri Lanka

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Use of biomass fertilizers appears to be the most appropriate way of adding nutrients into the soil which is environmental friendly and suitable for local conditions. Among the biomass fertilizer sources, *Gliricidia* has been identified as the most suitable nitrogen fixing legume. Some experiments that have been carried out showed that the *Gliricidia* with high N content and low lignin level is more suitable as N source. An investigation has been carried out to determine the nitrogen (N), phosphorous (P), and potassium (K) contents of different parts of *gliricidia* plant and to develop a slow-release nitrogen biomass fertilizer systems using *gliricidia* plant. Four types of *gliricidia* plants (Provenance Trail Series of *Gliricidia sepium* 17/84 Oxford Forestry Institute (OFI), *Gliricidia sepium* 25/84 OFI, *Gliricidia sepium* 25/84 OFI and *Gliricidia sepium* (Local species)) were obtained from Rathmalagara estate, Madampe in Coconut Research Institute (CRI).

According to the experimental results the level of nitrogen in different parts of the *gliricidia* plants varied from 0.43 % to 2.36 %. It was found that phosphorous and potassium content in *gliricidia* plant varied from 892.2 mg kg⁻¹ to 1258.2 mg kg⁻¹ and from 208.6 mg kg⁻¹ to 8678.5 mg kg⁻¹ respectively. Biofertilizers were prepared from *gliricidia* bark chips after treated with a saturated solution of urea (CH₄N₂O). The morphology and physiochemical parameters of treated *gliricidia* bark chips was investigated. Experimental result indicated that after *gliricidia* bark chips were treated with urea, total nitrogen content in the bark has increased by more than 200%. The initial nitrogen content in the bark was 17878 mg kg⁻¹. This study also evaluated the release pattern of nitrogen from impregnated *gliricidia* woodchips in a soil matrix and found that nitrogen was released in a slow-release pattern. The above findings confirm and gave promising results to further develop urea incorporated *gliricidia* bark particles as a slow-release new biomass fertilizer system.

Key words: biofertilizers, slow-release fertilizers, gliricidia, urea, nitrogen

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Development of Built Environment and Its Implication on Flood Risk in Gombe Metropolis, Nigeria

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The increasing frequency of flood events in urban areas and its devastating impact to lives, properties, resources and the environment as a whole posed a serious concern to environmental scientist the world over. There are many different perspectives regarding factors responsible for flood risk in urban areas, which range from hydrological extremes to man-induced factors. This paper examined the impact of built environment on the increasing flood occurrences in Gombe Metropolis. Data was essentially collected through questionnaire survey and analyzed using statistical model so as to discover the main factors causing flood in the metropolis. A multi-stage sampling technique was applied for data collection, where Gombe Metropolis was categorized into eleven residential quarters and a total of two hundred and fifty one questionnaires were administered to household heads in the respective residential quarters in the metropolis. And finally multi- linear regression analysis was conducted, where flood risk is conveyed as a function of some selected urban development variables and used to examine the relationships and impact of those variables in causing flooding and the increasing flood risk via a statistical model. The result shows that rapid growth of built-up structures with poor implementation of building control measures as the main factor for flood risk in Gombe Metropolis. However, construction of built-up areas on floodplains as well as inadequate space between building structures as recommended by the town planning laws, has also contributed immensely in the increasing flood risk in Gombe Metropolis.

Keywords: Built Environment, Flood Risk, Gombe Metropolis

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Effect of the Body Mass Index on Academic Performance of Undergraduates: With Special Reference to the University of Kelaniya, Sri Lanka.

P.A.L.Oshani ¹

This study will ease the unscientific belief that most parents and teachers have the overweight persons are sluggish, lazy and sleepy; therefore would not do well in academic performance at the university. The objective was to determine the relationship between Body Mass Index and Academic Performance. A descriptive cross- Sectional design was used. The study was conducted in University of Kelaniya Sri Lanka for undergraduate students. The subject included a random selection of 2500 undergraduates. (198 Male and 251 Female). Actabit BMI calculator and grade point average (GPA) scores were used to collect data. BMI was calculated from each student's height and weight recordings. AP was determined by each student's cumulative university GPA. Researcher used cross-tabulation analysis from SPSS 21, to identify the relationship between both categorical and scale data. Chi-square test revealed significant differences in BMI and GPA. The descriptive results showed significant associations between BMI and AP ($P < .001$). According to the results we observed a strong association between the BMI and AP $X^2(6) = 97.496, P = .000$. This study demonstrated that normal weight had higher GPA scores than their overweight counterparts, underscoring the need to intensify interventions focused on reducing and preventing obesity among university population.

Key words: BMI, GPA, Academic Performance, Overweight, Cross-tabulation.

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Effect of tourism on biodiversity in the coastal environment; A study of Bentota area in the south–western coastline in Sri Lanka

F.N. Joseph¹

Coastal environment is an amenity which has high scenic value and gives great enjoyment and pleasure for mankind. As a result most of the tourists have selected coastal areas as their desirable holiday destinations. However, growth of coastal tourism has created many environment problems at the present. Destruction of biodiversity is one of the major problem amongst them. Persistence of biodiversity is very important for maintaining ecological balance of coastal environment. Similarly these environment provide unique ecological services such as sediment storage and transport, water filtration, providing habitats for coastal species and functional links between terrestrial and marine environments.

The objective of this research was to find out effects of tourism on biodiversity in the coastal environments. South-western coastline between Bentota and Kosgoda river outfalls was purposively selected as the study area. Stratified random sampling method was applied for the collecting primary data in this research. The sample consists of three groups as adjoining households, workers in the tourist hotels and tourist guides. In addition field observation was made to gather further information. Secondary data were collected from publish and unpublished sources and websites. Raw data was analyzed by using statistical techniques available in Microsoft Excel Software.

It was reveals that the local people collect turtle eggs and sell them as income source, threatening the extinction of this endangered turtles. The removal of sea grass and other plants to make open beaches for recreations was seen as another destructive action. It accelerates coastal erosion and loss of the habitat for coastal species. Some tourist hotels empty their sewage and other waste directly into sea water.

The study found, some tourism related activities has threatened the coastal species. Also these activities are caused to sensitive coastal environment destruction. Raising awareness about value of coastal environment among the local population, especially involve owners and other responsible persons of the hotels and visitors, strengthening control measures and enforcement of environmental regulation and standards would helped to protect these coastal habitat for sustainable tourism development.

Key words: Coastal environment, Biodiversity, Tourism, South-western coastline

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Ethnic Triumphalism as a Bounded Foe of Ethnic Integration (Case Study of Sri Lanka)

Aruna Jayathilaka¹

Post war Sri Lanka continues to face a huge challenge of ethnic integration since, end of a civil war by military means does not necessarily mean the end of the conflict. This divided society can only build its shared future out of its divided past by having a well guided reconciliation process since, reconciliation is an approach which consolidates peace, breaks the cycle of violence by preventing the possibilities of the use of the past as the seed of renewed conflict. Further ethnic integration via reconciliation should be a holistic approach which should go beyond the ethno- religious boundaries in a multi ethnic society like Sri Lanka. Theravada Buddhism the main religion of Sri Lanka, has a negative view towards violence. Accommodative nature of Buddhism also provides a vast space for ethnic integration by bridging the ethnic demarcation lines. Hence, Cambodia provides a promising initiative for using Buddhism as a tool of post conflict peace building. Nevertheless religion may not be productive in peace building among the ethnicities, when politicized or manipulated as a tool of nationalism. Study finds that in the post-war context Sinhala-Buddhist ideology is the principal and determining goal of a government. When seeking a ruling ideology previous president, griped the Sinhala-Buddhist supremacism. Yet, neglecting the reconciliation triumphalism was well promoted. 'Non violence' and 'Empathy' which are the true essence of Buddhism were undermined by the arrival of fundamentalism. For instance, in post war Sri Lanka *Bodu Bala Sena* has emerged as a tool of Sinhala-Buddhist triumphalism by claiming as a counter - force of Islamic fundamentalism. Hence religious fundamentalism makes serious damages in the social and ethnic fabric of the country leaving reconciliation as a hostage of triumphalism. This leaves a huge challenge for the new government to utilizing of state mechanisms and social movements for the proper implementation of reconciliation process for ensuring post war ethnic integration.

Key words: Ethnic Triumphalism, Integration , Supremacism, Ruling Ideology , Sri Lanka

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Exam Stress of the Grade Five Students and Types of Personality

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Stress is a part and partial of the current social life and exam stress is one of main types of stress. Due to its competitive nature, Grade five scholarship exam is considered as a stressful exam which can create number of negative impacts on child growth and development. Thus, a proper psycho-social study on this issue is yet to be done. This research aims to examine the link between the nature of child's personality and the exam stress. The study used the mix method on data gathering. 125 students and 15 parents and teachers were selected from Colombo and Gampaha districts of the western province. A questionnaire system, interviews and observation were utilized to collect data. Further the case study system was used for the student that shows the high stress rate according to the stress scale. Gathered data were analyzed using symbolic interactionism theory by Gorge Herbert Mead and the Psycho analysis theory by Sigmund Freud. The study finds that exam stress of the child determines by the Ed, Ego and Super Ego influence. Children with strong Ego system well maintain their exam stress based on the realty principles. Children with strong Ed systems neglect their exam stress based on the pleasure principles. Children with the great influence from their Super Ego system have a great determination to fulfill their parent's and teacher's expectations, dream based on the morality and therefore find a negative stress such as morality anxiety. The study also finds a strong inter relationship between personality type and the stress. Negative impacts of the exam stress can cause for future personality disorders of child.

Key words: Personality type, Education, Exam Stress, Grade Five Scholarship.

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Examining the role of “jus gentium” (Law of the Nations) during Roman Empire

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Roman law emerged as a private law, which mainly focused on contract, property and family relations. But many legal elements began to infiltrate into the body of law when Rome became a powerful empire. During Justinian’s period the “Corpus Juris” became the hand book of Roman legal affairs relating to international affairs and other public laws. The most important fact of the laws compiled by Corpus Juris is it recognized non-citizens as a subject to the legal validity and this was uncommon to Greeks. Firstly Romans organized the legal system on foreign relations on the basis of certain customs introduced by a special group of priests in the republic era. This practice was known as “archaic jus fetiale”. Gradually this practice was turned into a broader understanding on international law which was known to Romans as “jus gentium”. Ulpian, a jurist who lived in 2nd century A.D further developed the concept of “jus gentium” into sub themes such as the state of law in the issues on slaves, marriages between Romans and non-citizens. Under the thread of jus gentium concept Romans made treaties with other foreign nations and it led them to uphold their “Pax Romana” in the frontiers of the empire. As an example the Roman emperor Marcus Aurelius and the German tribe Macromanni made a pact in 175A.D as palpable example for “jus gentium”. Apart from that Roman jurists in the empire widely wrote on how Rome should act during war with other nations. This principle was called “bellum justum” (the concept of just war). In later Roman history it had vanished but it was revived as a moral conception by St. Augustine (354-430). As a matter of the same right of bellum justum became the inspiration of Hugo Grotius who is considered as the father of modern international law to compose his advanced theory on law of war (jus ad bellum). This paper intends to trace how “jus gentium” worked out in the period of Roman Empire and also it further discusses the influences laid down by Roman law upon the foundation of modern international law. Reader will be able to understand the contribution made by Romans to shape the evolution of modern international law. In order to achieve the objective authors have adopted a methodology which is mainly based the works of Roman jurists and other historical sources. In addition to that juristic works of Hugo Grotius have taken into consideration to highlight the Roman influences on the evolution of international law.

Key Words – International law, Empire, Treaty, Just war, customs

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Exposure of Sexually Abused Adolescents to Societal Judgmental Attitude in Bauchi Metropolis, Nigeria

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The rate of sexual abuse among adolescent is increasing to an alarming rate in towns and cities. A good number of adolescents in Bauchi metropolitan population are one way or the other victims of sexual abuse on a daily basis. This paper examined the consequences face by sexually abused victims by peer groups at school and in their immediate environment. And also how do the victims cope with such attitudes. Literatures related to sexual abuse cases was consulted to have a wider knowledge. In order to find answer to the research questions questionnaire was administered to respondents in the study area to the sample population of one hundred victims using the simple sampling method. Interview and focus group discussion was also conducted to have an in depth understanding of the research problem. The data collected was analyzed using statistical package for social science (SPSS) and Pearson's correlation coefficient was used to determine the association among the research variables. The result shows that 52% of victims experience difficulties from societal behaviors such as mockery, given derogatory names, and treated unfairly at school and immediate environment. Consequently victims experience depression, anxiety disorder, insecurity, isolation, which influenced their attitudes towards different kinds of substance abuse and 61% are affected. Hence, leads to the increasing rate of sexual abuse cases among adolescent that comprise the largest population of Bauchi metropolis and when this problem is not truncated will lead to harmful wellbeing of the society.

Key words: Sexually Abused Adolescent, Societal Judgement Attitude, Bauchi Metropol

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තෙත් කලාපයේ පුරාණ යකඩ නිස්සාරණය :
ගුරුගොඩ ඔය පෝෂක ප්‍රදේශය ආශ්‍රිත නව පුරාවිද්‍යාත්මක සොයාගැනීම්
ශ්‍රියාණි හතුරුසිංහ¹

ගුරුගොඩ ඔය පෝෂක ප්‍රදේශය ආශ්‍රිතව සිදුකරනු ලැබූ පුරාවිද්‍යා ගවේශනයේදී පැරණි යකඩ නිෂ්පාදනය පිළිබඳ ප්‍රබල පුරාවිද්‍යාත්මක සාධක සොයා ගැනීමට හැකිවිය. එම නව පුරාවිද්‍යාත්මක සොයාගැනීම් පිළිබඳව මෙම පර්යේෂණ පත්‍රිකාවෙන් ඉදිරිපත් කෙරේ.

ගුරුගොඩ ඔය, දොතළුඇල්ල මව් ශාඛාව කරගන්නා අතර රිටිගහ ඔය, වී ඔය, දැදිගම ඔය සහ අලපලා ඔය වැනි ලොකු කුඩා දියාතු සම්බන්ධ කරගනිමින් රුවන්වැල්ලේදී කැලණි ගඟට එකතුවන ජලපද්ධතියකි. මුහුදු මට්ටමේ සිට අඩි 100 ත් 3500 ත් අතර පැතිරී යන භූ විෂමතාවයක් පෙන්නවන මෙම නිම්නයේ පෝෂක ප්‍රදේශය වර්ග සැතපුම් 139 ක් පමණ වේ. මිලිමීටර් 2000 ක පමණ වාර්ෂික වර්ෂාපතනයක් ලබන නිම්න ප්‍රදේශයේ, අවුරුද්ද පුරා පැතිරුණු වර්ෂාපතන රටාවක් දැකිය හැකිය. කඳු හා නිම්නවලින් සමන්විත භූගෝලීය පිහිටීමක් හා වර්ෂය පුරා වර්ෂාපතනය ලබන තෙත් දේශගුණයක් සහිත ගුරුගොඩ ඔය නිම්නයේ පැරණි යකඩ නිෂ්පාදනය කළ ප්‍රධාන වැඩබිම් 5 ක් හඳුනාගැනිණි. බෝයගොඩ, කුරුණෑගොඩ, ලෙනගල, කඩිගමුව, සහ දැදිගම යන ස්ථානවලින් යකඩ නිස්සාරණය පිළිබඳ පුරාවිද්‍යාත්මක සාධක ලැබෙන අතර ඒවා දැදිගම පැරණි කොටුවෙහෙර අවට පිහිටා තිබේ. යබෝර කුට්ටි (Iron Slag), පිරිසිදු යකඩ (Iron), යපස් කොටස් (Iron ore), යපස් කුඩු කළ වලවල් සහ වායු නල කොටස් (Wind Pipe) හමුවන මෙම ස්ථාන යකඩ නිස්සාරණය (Iron Smelting) කළ කම්හල් ලෙස තහවුරු වේ. බෝයගොඩ, කුරුණෑගොඩ සහ කඩිගමුව යන ස්ථානවල අක්කර දෙකකට වැඩි ප්‍රදේශයක් පුරා මේ සාධක විසිරී පවතී. පුරාවිද්‍යාත්මක කැණීමක් මගින් යපස් උණු කරන ලද උදුන් (Furnace) වැනි පුරාවිද්‍යාත්මක සාධක සොයාගත හැකිවනු ඇත. එමෙන්ම එවැනි පුරාවිද්‍යාත්මක අධ්‍යයනයක් මගින් මෙම සාධක දිනනීර්ණයන් සඳහා ද යොමු කළ හැකි වේ.

ප්‍රමුඛ පද : යබෝර, යකඩ නිස්සාරණය, යපස්, දිනනීර්ණය

¹ පුරාවිද්‍යා අධ්‍යයන අංශය, සමාජීය විද්‍යා පීඨය, කැලණිය විශ්වවිද්‍යාලය, ශ්‍රී ලංකා. pshathurusinghe@gmail.com

Factors Associated with Academic Performance of Students of Faculty of Social Sciences, University of Kelaniya - A case study

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The scarcity of studies related to the factors associated with academic performance in Sri Lanka, especially in relation to the university context, it was motivated to conduct this study with the primary focus of finding out the significant factors associated with academic performance of students of the Faculty of Social Sciences, University of Kelaniya. Identifying the variation of the impact of such factors on students' performance in the primary, secondary education and the university education and to determine whether there is an impact of students' past performances on Grade Point Average (GPA) also focused in this study.

A sample of 274 units from the Faculty of Social Sciences was selected using the random sampling method and a well-structured questionnaire was used to collect data. The GPA was considered the determinant of student's performance in the study. A descriptive analysis was conducted to identify the patterns of the data and the association of variables with the GPA. Kendalls' rank correlation, Mann Whitney U test, Kruskal-Wallis test and Spearman rank correlation test were used in the univariate analysis. The ordered logistic model was applied at the stage of advanced analysis in order to find the factors associated with GPA.

The descriptive analysis revealed that students' past education performance, residence place during the university life, association with friends, university facilities, students' health, family background, extracurricular activities and social activities affect the performance in the university. Ordered logistic model suggested that the "leisure time spent in the university" and "father's education" have positively affected on students' GPA which means when the time increases and father has a higher level of education GPA tends to be higher while "getting sick regularly" and "time spent in coming to university" have negatively affected in relation to the students' academic performance.

Key words: students' academic performance, university education, grade point average

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පෙරියකඩු නැලව රජමහා විහාරස්ථානය ආශ්‍රිතව පවතින ගල් ලෙන් පිළිබඳව විමර්ශනාත්මක අධ්‍යයනය.

ජේ.ඒ. ඉඳුනිල් ජයතිලක¹

මෙම පර්යේෂණය පෙරියකඩු නැලව විහාරස්ථානය ආසන්නයේ ඇති ගල් ලෙන් පාදක කොට ගනිමින් සිදුකොට ඇත. අවුරුදු 2000 ට පමණ වැඩ ඉතිහාසයකට උරුමකම් කියන්නා වූ මෙම විහාරස්ථානය වළගම්බා රජසමයට අයත් යැයි සැලකේ. වයඹ පළාතේ කුරුණෑගල දිස්ත්‍රික්කයේ හිරියාල හත්පත්තුවේ ඉහළ විසි දෙකේ බස්නාහිර කෝරළයේ පෙරියකඩු නැලව ගම්මානයේ පිහිටා ඇත. බ්‍රාහ්මීය අක්ෂර සහිත කටාරම් කොටන ලද ගල් ලෙන් රැසක් මෙම ප්‍රදේශයේ දක්නට ලැබේ. මීට අමතරව මෙම ස්ථානය ආශ්‍රිතව සෙල් ලිපි 5ක් ද දක්නට ඇත. මේවා ආචාර්ය සෙනරත් පරණවිතාන මහතා විසින් කියවීමෙන් අනතුරුව Inscripton of Ceylon ග්‍රන්ථයටද ඇතුළත් කොට ඇත. පර්යේෂණයේ ගැටළුව වනුයේ මෙම ස්ථානය මෙවැනි වූ ලෙන් රැසක් ඉදි කිරීමට යොදා ගත්තේ මන්ද යන්න අධ්‍යයනය කිරීම වේ. මෙම පර්යේෂණය සිදුකිරීමේ අරමුණ වනුයේ මෙම ගල් ලෙන් සකස් කොට ඇත්තේ කිනම් අරමුණක් මුදුන්පත් කරගැනීම උදෙසා ද යන්න අධ්‍යයනය කිරීම සඳහා වේ. ප්‍රධාන වශයෙන් මෙම අධ්‍යයනය සිදුකිරීමේ දී පර්යේෂණ ක්‍රමවේදය ලෙස ප්‍රාථමික මූලාශ්‍රය අධ්‍යයනය කිරීම සිදුවිය. එහිදී හමුවූ පුරාවස්තු අධ්‍යයනය, ප්‍රාථමික මූලාශ්‍රය අධ්‍යයනය හා සම්මුඛ සාකච්ඡා ප්‍රධාන වශයෙන් මේ සඳහා යොදාගන්නා ලදී. මේ අනුව මෙම පර්යේෂණයේ දී මා ගොඩනගන්නා වූ උපන්‍යාසය වනුයේ මෙම ස්ථානය අතීතයේ සිටම හික්ෂුන් වහන්සේලා වැඩ වාසය කළ ස්ථානයක් ලෙස පවතින්නට ඇති බවයි. ඒ බව සනාථ කෙරෙන්නා වූ පුරාවස්තු හා පාරිසරීය සාධක මෙම ගම්මානය පාදක කර ගනිමින් විසිරී පවතින බැවින් ඒවා අධ්‍යයනය කිරීම තුළින් මෙම සාධකයන් සනාථ කර ගැනීමට හැකියාව ඇත. ඒ අනුව මෙම පර්යේෂණයෙන් සනාථ කෙරෙන්නා වූ සාධකයන් ලෙස ගල් ලෙන් තුළ තිබී හමුවන ගොඩනැගිලි අවශේෂ, කටාරම්, සෙල්ලිපි, විවිධ ආකාරයේ මැටි භාණ්ඩ අවශේෂ දැක්විය හැකිය. මේ අනුව යථෝක්ත පර්යේෂණ ගැටළුව ඉදිරි විමර්ෂණයන් තුළින් සනාථ කොට ඉදිරිපත් කිරීමට බලාපොරොත්තු වේ.

ප්‍රමුඛ පද :- පෙරියකඩු නැලව, කටාරම්, සෙල්ලිපි, ගල් ලෙන්, පුරාවස්තු

¹ පුරාවිද්‍යා අධ්‍යයන අංශය, සමාජීය විද්‍යා පීඨය, කැලණිය විශ්වවිද්‍යාලය, ශ්‍රී ලංකාව, induniljayathilaka@yahoo.com

දේශපාලන කාටුන් නිර්මාණයේදී කාටුන් ශිල්පීන්ට සිදු ඇති ගැටලු සහ බලපෑම්

මධුරානි අත්තනායක¹ දිලිනි ලක්ෂිකා²

ස්වභාවික ලෝකයේ පවතින දෑ භාසා රසය ජනනය කරන අයුරින් විසුළු ස්වරූපයකින් යුක්තව අදිනු ලබන සිතුවම් කාටුන් ලෙස සරලව අර්ථ දැක්විය හැකිය. දේශපාලන කාටුන් කලාවේ ආරම්භය සිදු වූයේ ඇමරිකාවෙනි. ඒ 1754 මැයි 09 වන දිනය. මහා බ්‍රිතාන්‍යයේ බලපෑමට විරුද්ධව පෙන්සිල්වේනියා ගැසට් පත්‍රයේ බෙන්ජමින් ෆ්රැන්ක්ලින් නම් කාටුන් ශිල්පියා විසින් කැබලි අටකට වෙන් වූනු සර්පයෙක් අදිමින් එවකට රටේ පැවති අස්ථාවර භාවය නිරූපණය කරන්නට කාටුන් කලාව යොදා ගැනීමත් සමගය.මෙම කාටුනය “join or Die ”යනුවෙන් නම් කළේය. පසු කාලීනව ලොව පුරා දේශපාලන කාටුන් කලාව ව්‍යාප්ත වීමත් සමග ශ්‍රී ලංකාවේ පුවත්පත් වල ප්‍රධාන විශේෂාංගයක් ලෙස දේශපාලන කාටුන් නිර්මාණය විය. ලංකාවේ පුවත්පත් වල දේශපාලන කාටුන් ඇදීම ආරම්භ වන්නේ 1931 දීය. මෙරට පළමු දේශපාලන කාටුනය පළ වූයේ 1931 “ස්වදේශ මිත්‍රයා” පුවත්පතේය. එය ජී.එස් ප්‍රනාන්දු කාටුන් ශිල්පියා විසින් ඩොනමෝර් කොමිසම විවේචනය කරමින් අදින ලද කාටුනයකි.

දේශපාලන කාටුන් නිර්මාණය කිරීමේදී සෘජුව අදහස් ඉදිරිපත් කිරීමේ හැකියාව පවතී .පවත්නා දේශපාලන රටාව විවේචනය කරමින් දේශපාලකයා දැඩි ලෙස උපහාසයට ලක් කිරීමත් මෙමගින් සිදු වේ. මේ නිසා දේශපාලන කාටුන් ශිල්පීන්ට විවිධ අයහපත් බලපෑම් සිදු වන අතර ඊට බලපාන හේතු සාදක පිළිබඳව ගුණාත්මක පර්යේෂණ ක්‍රමවේදය යටතේ අධ්‍යයනය කර ඇත. එහිදී ශ්‍රී ලංකාවේ දේශපාලන කාටුන් ශිල්පීන් පස් දෙනෙකු කාටුන් නිර්මාණයේදී මුහුණු පෑ ගැටලු සහ දේශපාලන බලපෑම් යොදාගත්තේය.

මෙම පර්යේෂණයට අනුව දේශපාලන කාටුන් නිර්මාණයේදී පවත්නා දේශපාලන රටාව විවේචනය කිරීම නිසා දේශපාලකයන්ගේ විවිධ තර්ජනයන්ට ලක් වූ අවස්ථා දැකගත හැකිය. එහිදී අත කැපීම, මරණ තර්ජන, රැකියාවෙන් ඉවත් කිරීම ආදී බලපෑම් සිදු වූ අවස්ථා දැකිය හැකිය

මුඛ්‍ය පද: දේශපාලන කාටුන්, කාටුන් ශිල්පීන්, බලපෑම

¹ ජනසන්නිවේදන අධ්‍යයන අංශය, සමාජීය විද්‍යා පීඨය, කැලණිය විශ්වවිද්‍යාලය, කැලණිය, ශ්‍රී ලංකාව madhuaththanayaka@gmail.com

² ජනසන්නිවේදන අධ්‍යයන අංශය, සමාජීය විද්‍යා පීඨය, කැලණිය විශ්වවිද්‍යාලය, කැලණිය,ශ්‍රී ලංකාව
[**Dilinigamage07@gmail.com**](mailto:Dilinigamage07@gmail.com)

රොඩ් කුලයේ නූතන වෙනස්වීම් පිළිබඳ මානව විද්‍යාත්මක අධ්‍යයනයක්
(ශ්‍රී ලංකා සමාජය ආශ්‍රයෙන්)
 ගිතානි අමරතුංග¹

මෙම පර්යේෂණයේ මූලික අරමුණ වන්නේ රොඩ් කුලයේ වර්තමානයේ සිදු වී තිබෙන වෙනස්වීම් පිළිබඳ සාකච්ඡා කිරීමයි. දකුණු ආසියාතික සමාජයට පමණක් ආවේණික වූ සුවිශේෂ සමාජ ස්ථරායන (Social Stratification) ක්‍රමයක් වන කුල ක්‍රමය (Caste System) අතීතයේ සිටම ශ්‍රී ලාංකීය සමාජය තුළ මුල් බැසගෙන තිබේ. ශ්‍රී ලංකාවේ විවිධ කුල රැසක් දක්නට ලැබුණ ද ඒ අතරින් කුල ධුරාවලියේ (Caste hierarchy) පහළම ස්ථරය හොඳවන්නේ රොඩ් ජනතාවයි. ඔවුන් සංඛ්‍යාත්මක වශයෙන් ඉතා අල්ප වේ.

මෙම කුලීනයන් රොඩ් වශයෙන් ඉතාම පහත් තත්ත්වයකින් සැලකීමට සිදුවූයේ රජවාසලට මුව මස් වෙනුවට මිනීමස් සැපයීමේ වරදටය (Knox: 1681; p70-71). විදී පුරා ඇවිදීමත් සිඟමන් යඳිමින් අනෙකුත් සියළුම ජන කොටස්වල පිළිකුලට අතීතයේ ඔවුන් පාත්‍ර විය. නමුත් වර්තමානය වන විට රොඩ් කුලයේ සමාජ ආර්ථික පසුබිම ඔවුන්ගේ සංස්කෘතිය දැඩි ලෙස විපර්යාසයට බඳුන් වී තිබේ. ඒ අනුව මෙකී පර්යේෂණයේ පර්යේෂණ ගැටළුව වන්නේ වර්තමානයේ රොඩ් කුලයේ ඇති වී තිබෙන වෙනස්වීම් මොනවාද යන්න පිළිබඳවයි. ශ්‍රී ලංකාවේ බ්‍රිතාන්‍ය පාලන සමයේදී සමානාත්මතාව සහ හිමිකම් වැනි සංකල්ප ප්‍රචලිත වීමත් සමඟම රොඩ් ජනයාගේ සාම්ප්‍රදායික ජීවන රටාව පැහැදිලි වෙනසකට භාජනය විය. රොඩ් ජනතාවගේ සංස්කෘතිය විවිධ වෙනස්වීම්වලට භාජනය වී තිබේ යන උපන්‍යාසය (hypothesis) මුල්කොට ගෙන රොඩ් ජනතාවගේ අතීතයේ සිට වර්තමානය දක්වා ඇති වී තිබෙන වෙනස්වීම් පිළිබඳව අවධානය යොමු කිරීම මෙම පර්යේෂණයෙන් බලාපොරොත්තු වේ.

මුඛ්‍ය පද:- කුල ක්‍රමය (Caste system), කුල ධුරාවලිය (caste hierarchy), සමාජ ස්ථරායනය (Social Stratification), සමාජය වෙනස්වීම (Social change)

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Gender Dimension of Subjective Wellbeing in Fishing Community (A case study of Rekawa fishing village in Sri Lanka)

K.P.G.L Sandaruwan¹, D.W.L.U.De Silva

This paper focuses on the gender dimensions of subjective wellbeing in fishing households Rekawa Sri Lanka by applying Global Person Generated Index (GPGI) to understand wellbeing need of a fishing community. Information for this paper gathered from a mix of methods, including an initial phase of open-ended interview were carried with hundreds of respondents (50 women 50 men selected) and focus group discussions with key informant of the village. The fisher households were selected through simple random sampling technique. The men and the women of one household were interviewed simultaneously but separate locations to prevent influence from each other for their response. The paper emphasized essentiality of studying wellbeing of both fishermen and fisherwomen together to get a holistic landscape of wellbeing in fishing community because mixture of wellbeing aspects of both men and women synergistically or antagonistically influence on overall wellbeing of household. As well family husband and wife has common and sharing wellbeing goal. Both of them work together to achieve those. According to the gender role, difference some wellbeing aspects critically important for one gender than other. (Fishing gear was mentioned by significantly high number of fishermen than fisherwomen). The wellbeing needs of fishermen are more material oriented and fisherwomen are more subjective oriented. Both male and female highly satisfied on relational wellbeing factors but they dissatisfied on relational wellbeing. Entangle in a loan trap, uncertainty of income are common wellbeing issues for both fishermen and fisherwomen. Addiction of household head for liquor is one of a major wellbeing issue for fisherwomen. Ability of fisherwomen to manage household economy under uncertainty condition was come out as a one of a causal factor to create wellbeing variation among fishing families in the community.

Key word:- Global Person Generated Index (GPGI), Subjective wellbeing, Gender difference , fishermen, fisherwomen

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Global Threats to the Political Security of Sri Lanka (Reference to the Post War Period)

Shashikala Aloka Kumari Madanayaka¹,

Political security is one of the significant elements in the context of national security which linked to all the components of a nation state. Political security of a country is about the stability of social order. In post war period, Sri Lanka is going through certain threats which can affect the political security of the country. Accordingly, the main objective of the study is” to identify the global threats to the political security of Sri Lanka in post war period”. The methodology that has applied for the study is qualitative in nature while using both primary and secondary data. To gather primary data, purposively selected sample of 150 people (20%) has been used only in the fields of military, academic, government and other professionals. As per the study, the identified global threats to the political security of Sri Lanka are Human rights violation and war crimes issue, Anti-Sri Lanka attitude in Tamil Nadu, Political pressure from India on 13th amendment, Influence of Tamil Diaspora, and Channel 4 challenge. As per the primary data, 78% of the sample proved that there is an impact of these global threats on the political security of Sri Lanka. As a country, Sri Lanka should have an effective political strategy to overcome such global threats.

Keywords: Global threats, Political security, Post war period, Sri Lanka.

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Happy Family Life through Buddhist Family Therapeutic Techniques

Sarath Chandrasekara¹

The Family is basic socialization unit of the society. That is the focal point of the develop country and if the families are healthy and well balanced then there are no conflicts in the society. The concept of family receives significant attention from both sociologists and psychologists. Their approach to resolve family issues are known as family counseling which constitute treatments in the whole family is the focus, rather than an individual family member. Social scientists have shown that there are three basic human expectations namely safety, satisfaction of the basic needs and undisturbed life. Also the dynamics arising from emotional states and interpersonal relationships among the family members contribute to the personal development and the welfare of each and every family member.

Buddhist family therapy is based on resolving issues before they turn into nasty conflicts. It's an approach based on problem prevention rather than conflict resolution. It addresses the root causes and effects and find ways to prevent issues from becoming conflicts. If the husband and wife attend to their duties and responsibilities, their family experiences harmony and progress. This is the balance of equilibrium conducive for their family to grow. This is the goal of Buddhist Family therapeutic techniques, through these Techniques, family members become conscious of their roles, which is essential in maintaining the equilibrium. The trust between the husband and the wife is the basis for the welfare of the other family members and it leads to the happy family life. Some of the major techniques are drawn attention for further application. Those are Mindfulness Based Buddhist Family Therapy, Buddhist Introspective Family Therapy, Buddhist Reality Family Therapy, Emotional Control Buddhist Family Therapy, and Cause and Effect based Buddhist Family Therapy. Buddhist family therapeutic techniques are most effective to keep happy family life in all space of the world today.

Key words: family, family therapy, conflicts, mindfulness, equilibrium

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Home Stay Concept in Sri Lanka and its Impacts (With special reference to Padavigampola Home Stay Village.)

M.V.R.M. Suvimali Rathnayake.¹

Home Stay is one type of accommodation sectors in tourism industry. It allows to tourists stay with local families in the destination and become familiar with local style. Padavigampola Village is situated in Rambukkana, Kegalle district, Sabaragamuwa Province. It is the first home stay village in Sri Lanka. The objectives of this research were to identify both positive and negative effects of the home stay project and giving recommendations to promote home stay concept furthermore.

Field observations, interviews, questionnaires used as data collecting methods and those collected data were analyzed analytically because both qualitative and quantitative data were gathered during the study. Most of villagers had a good attitude about this project because of the positive benefits. Creating job opportunities, community development, generating income for villagers, improve quality of life and ensure environmental sustainability are some positive benefits. Comparing the outcome of home stay concept, benefits are abundant rather than the negative impacts. Establishing information centre, introducing new activities and new concepts for visitors, involving private sector, encouraging host community, regular monitoring and feedbacks, conducting awareness programs are some recommendations for improving positive effects and minimizing negative impacts for promoting Home Stay concept.

Key words: - Tourism, Home stay concept, Community, Accommodation, Impacts.

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Jogging Trail Behavior: Effect of intrapersonal and structural constrains on jogging trail behaviour. (Special reference in kiribathgoda-Dalupitiya jogging trail)

B.A.D.W.Ashika¹

Performing a physical activity on a regular basis will help to improve overall health and fitness, as well as to decrease the risk for many chronic diseases. there have been many efforts to increase physical activity which mostly focused on the intrapersonal. jogging is the most commonly reported and the most accessible form of leisure time physical activity among general population. However little is known about the factors that influence jogging in leisure time physical activity. the main purpose of this study to identify intrapersonal factors that affect jogging trail behaviour. Primary data were collected using semi structured interview and analyzed using Atlas ti 7.0. The study identified that intrapersonal factors such as motivation to walk, knowledge about walking and physical activity, physical fitness, mental fitness, emotion on walking and routing and time priority is directly influencing on jogging trail behaviour. Similarly, considering findings of this study some structural constrains factors also affect on jogging trail behaviour.

Key words: Physical activity, Jogging trail, Intrapersonal constrains.

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National Security as a Pretext for Securing US Hegemony after 9/11

R. M. Sachithra Sajeevi Rathnayake

In today's world, national security is on top of every country's agenda. Governments adopt various policies to protect the physical integrity of State and its people from multi-dimensional threats. The national security of the United States (US) was greatly threatened by the September 11, 2001 al-Qaeda terrorist attacks (referred to in the study as 9/11) on the US. In response to the attack, the US government launched the national security strategy of War on Terror to mitigate terrorist acts, demolish terrorist organizations and block financing of terrorism by overthrowing the regimes that support terrorism. Since the disintegration of the Soviet Union in early 1990s, the US is regarded as the undisputed superpower in the international system. Previous scholarly efforts elaborate how the US has been able to influence international politics, asserting its hegemonic position in the world in the post-Cold War era. However, less attention is paid to research whether national security strategies are employed to maintain US hegemony in the international arena. Hence, the objective of the study is to examine whether the US utilized national security as a pretext to secure its hegemony in the world order after the 9/11 terrorist attacks. The study adopts a qualitative methodology and is mainly based on secondary data. Hegemonic stability theory, realism, offensive realism and offence-defence theory are incorporated to analyze post-9/11 national security strategies of the US and its hegemonic ambitions. As per the study, the US manipulated the tragedy of 9/11 to implement a national security strategy which promoted violence and repression rather than abolishing terrorism, to be used as a pretext for securing US hegemony in the world through its military might.

Key words: US Hegemony, National Security, War on Terror

New Dimensions of Expansion of Evangelical Groups in Sri Lanka.

H. Nirmal Fernando

The paper focuses on the new dimensions of evangelical groups established in Sri Lanka. It is evident that conversion growth of evangelical groups is on rapid influx. Hence they exploit effective strategies to increase the affiliation to their evangelical resurgence. Therefore there is a new dimension of their missionary praxis. The objective of the study was to socially analyze the religious emigration of migrant workers who work in Middle- East and Europe by the overseas branches of evangelical groups who are currently operating in Sri Lanka. The research is carried out in 2014-2015 amongst evangelical Christian community in Sri Lanka. As per methodology I already have engaged in several participatory observation sessions involving some evangelical Christian communities and intend to conduct series of interviews both individual and groups -wise. Findings thus far indicate a rapid expansion of foreign missions through establishing international cells with the mediation of the evangelical leadership active on the island.

This study aimed to determine the causes of religious conversions of Sri Lankan migrant worker and Sri Lankan Diaspora. The outreach approach of evangelical groups has resulted enormously attracting persons who are alienated from their own cultural context and experience culture shock as most of them live in a socially discriminated and emotionally imbalanced atmosphere. Therefore migrant worker's communities both in Middle- East and Europe have become happy hunting grounds for proselytizing into evangelical resurgence. With this increasing phenomenon it is evident that evangelical groups have intensified conversion agenda and it reaches beyond parameters in keeping with new evangelism called 10/40 of AD2000 and 'Beyond movement'. The event of religious conversion in this context is not merely proselytizing instead a paradigm shift from prevailing status to new identity. The prime cause of this study population to change their conventional religions is social mobility that they possess from self contempt to self esteem and from alienation to fellowship.

Key words: missionary praxis, proselytization, culture shock, social mobility

Objectives and the audience of regional radio of Sri Lanka:A Study of “Rajarata and Wayamba handa” Radio.

Dammika Bandara Herath¹

The Radio service of Sri Lanka Was decentralized at a time when the entire country could not be covered by the National Radio service. As a result of this, regional radio services were set up in remote areas of Sri Lanka. This services ware operated in accordance with the series of specific objectives such as to remove the monopoly of the national radio and take the microphone to the village and give priority to the regional specialties. At present theses regional radio services are at a risk practically and conceptually. The purpose of this research is to focus on the nature of implementation and timeliness of objectives.

The first regional radio service “Rajarata Sewaya” and “Wayamba Handa” radio service which was setup last, have been used as the research area. In this research four methodologies were used in order to collect data. They are, giving questionnaires to hundred targeted listeners, conducting in-depth interviews with 20 prominent persons in the relevant field, participatory observations and content analysis.

Irregular objectives which were formulated when setting up regional radio services are inadequate by today. The researcher’s recommendation is to operate the regional radio services in accordance with a series of new objectives and also suggest a set of new objectives.

Key Words - Regional Radio , Objectives , Listeners , Decentralize .

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දරුවන්ගේ සමාජානුයෝජන ක්‍රියාවලිය හැඩගැසීම කෙරෙහි දෙමාපියන්ගේ ජාත්‍යන්තර ශ්‍රම සංක්‍රමණවල දායකත්වය)

වරුණි වික්‍රමආරච්චි¹

කිසියම් රටක දේශසීමා පසුකරමින් සාමාන්‍ය පදිංචිය වෙතස් කරමින් සිදුවන අවකාශීය වලනය ජාත්‍යන්තර සංක්‍රමණය වශයෙන් හැඳින්වේ. පුද්ගලයා කිසියම් රැකියාවක් අපේක්‍ෂාවෙන් තමන් ජීවත්වන ප්‍රදේශයේ සිට වෙනත් ප්‍රදේශයක් දක්වා නැතහොත් සිය රටේ සිට වෙනත් රටක් දක්වා සංක්‍රමණය වීම ශ්‍රම සංක්‍රමණය (Labour migration) වශයෙන් සංක්‍රමණ පිළිබඳ ජාත්‍යන්තර සංවිධානය (International organization for migration) නිර්වචනය කරයි.(IOM : 2008)

ශ්‍රී ලංකාවට 1977 විවෘත ආර්ථිකය හඳුන්වා දීමෙන් අනතුරුව ජාත්‍යන්තර ශ්‍රම සංක්‍රමණ වඩාත් පුළුල් ලෙස ප්‍රසාරණය විය. මෙම සංක්‍රමණ ප්‍රවාහය වැඩි වශයෙන්ම සිදුවූයේ බටහිර ආසියාව කරාය. නමුත්, එම සංක්‍රමණ ප්‍රවාහයට අමතරව 1977 ට පෙර යුගයේ සිටම ශ්‍රී ලාංකිකයන් ඉතාලිය බලා සංක්‍රමණය වීම සිදුවිය. ඒ අනුව වර්තමානය වන විට ශ්‍රී ලාංකිකයන් පුත්තලම දිස්ත්‍රික්කයේ වෙන්නප්පුව ප්‍රදේශයෙන් බහුල වශයෙන්ම ඉතාලි ශ්‍රම සංක්‍රමණ සිදුවී තිබේ. මෙවැනි පසුබිමක් තුළ පුත්තලම දිස්ත්‍රික්කයේ වෙන්නප්පුව ප්‍රාදේශීය ලේකම් කොට්ඨාසයේ ඉතාලි ශ්‍රම සංක්‍රමණික පවුල්වල දරුවන් 100 දෙනෙකු නියැදිය වශයෙන් තෝරා ගැනීම සිදුවිය. මෙම පර්යේෂණයේදී දත්ත රැස් කිරීමේ ශිල්පක්‍රම වශයෙන් නිරීක්ෂණය, සම්මුඛ සාකච්ඡා ක්‍රමය සහ සහභාගීත්ව නිරීක්ෂණ ක්‍රමය යොදා

ගන්නා ලදී. එහිදී මේ සඳහා වඩාත්ම සුදුසු පර්යේෂණ ක්‍රමවේදය වන්නේ කෘත්‍යාත්මක ක්‍රමයයි. ඉතාලි ශ්‍රම සංක්‍රමණිකයන් ශක්තිමත් ආර්ථික පසුබිමක් සාධනය කර ගන්නා අතර පවුල් සංස්ථාව තුළ විටෙක පියා පමණක් හෝ තවත් විටෙක මව පියා දෙදෙනාම ශ්‍රම සංක්‍රමණිකයන් වශයෙන් ඉතාලියට සංක්‍රමණය වේ. ඉතාලි ශ්‍රම සංක්‍රමණිකයන්ගේ දරුවන් ඉතා සුබෝපහෝගී ජීවිතයකට හිමිකම් කියන අතර අනෙකුත් දරුවන්ට සාපේක්‍ෂව ඔවුන්ගේ සමාජානුයෝජන ක්‍රියාවලියේ විවිධ වෙනස්කම් රැසක් හඳුනාගත හැකිවේ. විදේශගත වූ දෙමාපියන්ගේ දරුවන්ගේ ආකල්ප සහ වර්ග රටාවන් හැඩගැසී තිබෙන ආකාරය පිළිබඳව අධ්‍යයනය කරන විට දෙමාපියන්ගෙන් බැහැරව ජීවත් වන මොවුන් විවිධ අපගාමී වර්ගවන්ට නැඹුරු වී සිටින බැව් පෙනේ.

මුඛ්‍ය පද : ජාත්‍යන්තර සංක්‍රමණ, ශ්‍රම සංක්‍රමණ, සමාජානුයෝජනය, විවෘත ආර්ථිකය, සංක්‍රමණිකයන්

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Plight of Women as reflected in Bapsi Sidhwa's Novels *Ice Candy Man* and *The Bride*

Arivarasy Muthulingam¹,

Bapsi Sidhwa who is born in the Parsi community has changed into a Pakistani citizen after the partition of India in 1947. But she establishes herself as an American now. Her novels analyse the social, emotional, political and spiritual implications of the partition of India in 1947. Bapsi tries to bring the effects of human civilization especially the teeming violence which is being repeated in the human history. The aim of this study is to depict the plight of women who are caught up in the historical event surrounding the geographical and social division in Bapsi Sidhwa's novels *Ice-Candy Man* and *The Bride*. In *Ice Candy Man*, it is through the eyes of an eight year old Parsi child Lenny, Sidhwa shows the culmination of violence, especially the exploitation of women. During the course of these events, Lenny's beautiful young Hindu nanny Ayah is kidnapped and raped by a group of men. *The Bride* portrays the events of the partition through the story of Qasim, whose family was killed in the massacre. Sidhwa skillfully links gender to community, nationality, religion and class. *The Bride* reflects the place of women in Indian and Pakistan society and how they are corrupted during the complex history of the growing divisions among Hindu, Muslim and Sikh communities of India. These two novels try to show the animosity and brutality of male chauvinism during violence which is horrific. Hence, Sidhwa has been highly regarded as a feminist postcolonial author. The qualitative methodology of this research will be carried out through texts, journals, articles and informal interviews. The arguments will be developed based on the host of criticisms collected from various sources.

Keywords- exploitation, male chauvinism, history

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Pornographic blogs spreading in Social network (With Special attention to Sinhala medium blogs)

M.K.D.Pasqua¹

The history of the Internet begins with the development of electronic computers in the 1950s. Internet has a history of 40 years in media activities in the world. 40% of the world populations use the internet. It is 20% of the population in Sri Lanka. There are various types of information spreading models in the internet. Blog sites are special among other websites. A blog is a simple webpage which perform information or ideas of a person or a small group. Pornographic blogs, which are currently published in Sinhala medium, has a historical base in the whole world. They appear in many forms including sexuality, pornography and sensuality. Large numbers of Sinhala medium pornographic blogs are currently active in the internet.

This study is based on a content analysis of Sinhala medium pornographic websites on the investigation poser whether any special characteristics in Sri Lankan pornographic 10 blog sites affect its subscriber attraction.

Pornographic blogs have spread widely and also they are increasing their subscribers day by day. The reason is the media independence in social media. Blogs appear in various pornographic types. These free pornographic forms will be challenge in increasing of current social issues.

Key Words: Blog site, Pornography, Network Readership

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Potentials of Developing Religious Historical Museum in Sri Lanka

Piyumi Embuldeniya¹, Indrachapa Gunasekara²

There are various types of museums in the world and in Sri Lanka, among which religious museums are one popular and common variety. This research paper describes the potentials of developing a museum related to Religious history of Sri Lanka. Furthermore, its importance as an educational centre, as a religious synchronization centre and as a tourist attraction will also be described through this research. In this study, field research and library survey methods were used collect the data. Sri Lanka has a rich history ranging from Pre-historic period to contemporary period and directly connected with various religious activities.

There are multi ethnic and multi religious people in Sri Lankan society. Sri Lankan culture varied with Buddhism, Hinduism, Islam, Christianity and some other religions. Throughout these aspects can be recognized that Sri Lanka has diverse of religions. There are some museums and galleries which exhibits the historical background of single religious place. But Sri Lanka still lacks a single institution which displays the complete religious history of Sri Lanka. Through this study can suggest that, a completely new religious historical museum covering the all religions and all aspects which can provide tourist attraction, knowledge, practical experiences and religious harmony. Considering the results of this research could conclude that, it is significant to have one place where the complete religious history can be experienced and reviewed through the religious harmonization of Sri Lanka.

Key words: Sri Lanka, Religious history, Museum, Synchronization, Education, Attraction

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Preschool teachers' perception on use of play based activities for language skills development

P.L.N.Randima Rajapaksha

In early years language skills are acquired through social interactions with peers and adults. Play activities provide opportunities for children to improve language skills. The Sri Lankan standard for early childhood education and care highlights the need of play based activities for language development. It is necessary for teachers to understand the role of play to develop language skills in children. The focus of this study was to examine the teachers' perception on use of play based activities for language skills development and to identify factors influencing the implementation of play based activities for development of language skills. A survey method was employed using questionnaires as the main instrument to collect data. The respondents consisted of 80 preschool teachers from the Certificate in Preschool Education Programme, 2014/15 academic year in Colombo Regional centre in the Open University of Sri Lanka. All respondents were selected randomly. To gain additional insights into the teachers' perceptions and the factors influencing their implementation 15 respondents were selected to be interviewed and observed based on their consent. The findings showed that the preschool teachers have favorable perception about the use of play based activities for language development. They were aware of the importance of play for language development. Majority believed children like very much to involve in play and when children engage in play based activities they use more language skills. However majority were unsure of organizing and implementing effective play based activities suitable for language development. Factors related to teachers' qualifications and experiences, preschool administration, preschool timetable, time, physical space and materials influenced them for more teacher directed activities. The study points to the importance of emphasizing use of play based activities for language skills development.

Key words: Perception, Preschool education, Language skills development, Play based activities

Promoting Ethical Recruitment Practices in Labour Migration; Sri Lankan Legal Perspective

W.N.G.Panditharatne¹

Labour migration from Sri Lanka has been increasing during past few decades with the opening of temporary employment opportunities especially in the Gulf Region and it has generated substantial inflows of remittance to the country's economy over the past years. Having understood the responsibility of protecting and empowering of migrant workers, the government of Sri Lanka has introduced various legislations and mechanisms for the purpose of regulating and administration of matters relating to labour migration. Despite all these measures, Sri Lanka continues to face a number of challenges in the field of labour migration. Unethical recruitment practices ranging from charging excessive fees, withholding passports, false information about the age of employees, non-disclosure of employer and the nature of the job are some of the main concerns face by the authorities. Therefore, it is essential that more efficient legal framework and mechanisms to regulate labour migration should be available to prevent unethical recruitment practices in Sri Lanka for the benefit of both economic growth and social justice. Hypothesis of 'The existing legal framework in Sri Lanka is not adequate for prevention and regulation of unethical recruitment practices in labour migration' has been tested to achieve following objectives; To evaluate the effectiveness of the existing legal framework and identify the complex areas in regulating ethical recruitment practices, to identify international standards for promoting ethical recruitment practices and compare with Sri Lankan legal framework and finally come up with effective and workable suggestions to regulate and prevent unethical recruitment practices in labour migration are the main objectives of the research. The methodology applied is a quantitative assessment of available literature and statistics in the broad area of labour migration in Sri Lanka. A comprehensive study has been carried out to evaluate available literature such as domestic and international legal instruments, reports and articles published by the experts in the field. Findings of this research are that the existing legal framework in Sri Lanka is not effective enough for prevention and regulation of unethical recruitment practices in labour migration. . Employer accreditation system has not been designed in consistent with the international standards. Inadequate mechanism for monitoring and compliance can be identified as a major obstacle.

Key words: Labour Migration, Ethical Recruitment Practices, Legal Framework

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Provision of Internet access among public libraries in Sri Lanka: Special reference with Tsunami reconstructed Public Libraries in South Coastal area.

J.M.S Dilinika¹

December 26th, 2004 tsunami killed thousands of people and caused a massive damage to properties. It was recorded as the worst tragedy of the century. It devastated 65 public libraries in coastal areas and out of these 65 public libraries 28 Libraries were completely destroyed. Though several reconstruction projects were operated to facilitate the tsunami affected public libraries in south coastal areas, there are no adequate internet facilities provided for them. The present research attempts to address this problem.

The principle objective of this paper was to identify the availability of internet facilities among tsunami reconstructed public libraries in Sri Lanka. The other objectives were to identify reasons for not having sufficient facilities for libraries and to examine to what extent these libraries were providing Internet facilities. The population of the study consists of all tsunami affected public libraries in south coastal area. The researcher visited all of the above libraries and investigated the situation and gathered data using research techniques such as, structured questionnaires, direct observations and 16 librarians and library assistants were interviewed during the survey to gather data.

Out of the reconstructed libraries in the sample only 12.5% had Internet facilities and the rest, namely 87.5% did not have this facility in the library. From all the reconstructed libraries in the sample 50% libraries didn't have computers and the provision of computer facilities too in them was limited.

According to results, the following measures are recommended: Provision of sufficient computer facilities, improvement of infrastructures and making internet facilities available at the library.

Key words: Library, Tsunami, Internet, Computers, User Services

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Radio “Dambana”: A new experiment of Community radio in Sri Lanka

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Madurani Attanayaka⁵.

Sri Lanka is the first country which started the Community Radio station in Asia, as Mahawali Community Radio (MCR). But many researchers point out that it was not a proper way of establishing a community radio. (Jayaratne, 2008). The rationale behind is that its name as “community” but functioned as “state owned”. In 2010 the main MCR station Giradurukotte Community Radio, launched as Radio Dambana. It was transformed as community radio for Sri Lankan Vadda community mainly located in the area of Dambana.

In this research we are trying to analyze the main functions of the radio dambana as a community radio. While doing this we are searching the sustainability of the station and its scope.

We have used mix methods to collect data such as interviews field visits, content analysis of the programmes as primary data. To analyze the data we deployed the SWOT analysis as a tool.

The findings suggest the format of radio dambana would need a shift of its functions to achieve the aims and objectives of the station.

Key words: Community radio, state owned, sustainability.

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Re- styling civilizations: Understanding changing repertoire of elegance in male dress fashions.

P.V.M.Karunaratne

This paper explores the necessity to take further analytical reading of the critical issues of hybrid male dress by using the knowledge on cultural authentication. Furthermore, paper this examines how the elements of dress from one source culture and the receiving culture merged. The study revealed how the process of cultural authentication incorporated into new settings and how the elements of dresses transformed.

At a one moment fashions of dresses in society changed as Western and then appeared as non-Western. Many scholars addressed this issue of arbitrariness of the Western and non-Western categories of fashion. This revealed us the human societies are subjected to be continuously receiving from each other stimuli incorporating social, cultural, economic and political developments also internal and external influences that affect dress. This process resulted in generating new hybrid clothing styles. Scholars also argued Western fashions of dress are one of multiple global traditions that co-exist with long established cultural traditions. It is seen that Sri Lankan fashion markedly affects contemporary fashions in Western Europe.

A qualitative research method was adopted for the research. Sequence of observational studies carried out with temple paintings, wood carvings, sculptures, cloth paintings and ivory carvings. The literary data were gathered from many original documents. Validations of data were much concerned.

Sri Lanka was first exposed to Western during early phase of the 16th century when the Portuguese conquered the island. During this period the male dress fashion created a social distinction within Sri Lanka. Inspiration and hybridization were part of the process by which Western dress fashions and etiquette were adopted. Numbers of dresses were worn by the King and elite male show changing repertoire of elegant hybrid fashion etiquettes.

Key words: Cultural Authentication, Tradition, Culture, Hybrid clothing styles, Fashion

Recreating pre historic environment based on the spread of land snails and fresh water snails.

Ven. Pahiyangala sumangala¹

Sri Lanka has been positioned as a small island in right direction in the Indian subcontinent. There are three major climatic and environmental zones in Sri Lanka including wet zone, dry zone and intermediate zone. Remains of snails found from the pre historic excavations and remains of presently living snails are supportive to identify the climatic differences occurred in more than thousands years ago. Research question of this study are to identify what were the eco system and climatic conditions appeared in ancient Sri Lanka (35000 years before present) and to examine the possibility of recreation of the ancient environment through the excavated remains of the snails. Objective of the study is to identify that how was the basic structure of the ancient environment prevailed in the island in ancient times. Major research method of the study is field observation and the data were collected from the primary sources including field observations carried out at the pre historic sites such as Pahiyangala, Batadombalena and Pothana. Previous researches were also referred as the secondary sources during the research. Remains of land snails were used as the main environmental factors to recreate the ancient environment consisted in ancient Sri Lanka. These snails had been adopted according to the various vegetation types of the Island. It is reported that 253 of land snails species and 94 of fresh water snail species have been found in Sri Lanka. Among them 05 of land snails are endemic to the island. Habitation of the land snails and fresh water snails can be found in the various vegetation types such as low land rain forest, sub Montana / Montana rain forest, dry monsoon forest and cultivated habitats. It has been identified that the snails have been survived at the pre historic cave sites (Fa-hian Cave, Batadomba Cave and Belilena Cave) and open areas 43,000 before present. Living patterns or habitats of these snails are different according to the climatic zones. It is possible to recreate the prehistoric environment through the usage of bio indicator species which are relative to the snail species found in currently. As most of the evidences of the snail remains are recorded from the wet micro habitats, it can be identified that the environmental and climatic condition of the country had not been changed severely. Some of the snail species examined during the research are cyclophorus (land snails), plandomus (fresh water snails) etc.

Key Words: wet zone, land snails, fresh water snail, caves

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Reflection of ‘access’ in ICT4D evaluation: The case of Nenasala telecenter initiative in Sri Lanka

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As the world moves towards information society, countries started to extend access to information and communication technologies to their populations. Telecenters have been seen as an important means of bridging the digital divide; providing access to appropriate information required for social and economic development. Hence development of rural information kiosks has become increasingly popular development initiative, increasing in number worldwide. In Sri Lanka, e-Sri Lanka strategy, acknowledged affordable access to ICTs will ensure more effective, citizen centered and business friendly government, empowerment of the rural poor, women and youth. It envisioned a ‘community-based open access workstations’ program called *Nenasala*, to ensure availability of affordable basic communication services, access to social services, e-commerce and mobilization of local knowledge. Evaluation work in the development sector has evolved through a revolutionary path, as a practice as well as profession. The taxonomy of evaluation is multipronged, can be seen categorized based on different perspectives, criteria, inputs used, and perhaps the phase of intervention being evaluated. But there is as yet no widely accepted systematic evaluation procedure for telecenter programs. No shortage of evaluative frameworks for ICT for Development, but, none is completely satisfactory for measuring access to ICTs. Therefore alternative evaluative frameworks are increasingly required or existing evaluative criteria should be redefined to cater to the specific requirements of telecenter initiatives, for instance to measure the extent to which beneficiary groups are effectively and meaningfully engaged with ICTs. This paper gives a brief overview on evaluation of development aid, and then moves on to discuss what is missing in evaluating ‘ICTs for Development’ initiatives. While introducing the ‘Nenasala’ telecenter initiative in Sri Lanka, it reviews the magnitude of reflection of access in three consecutive evaluations commissioned to study the telecenter program.

Keywords: Evaluation, Access, Nenasala Telecenters, e-Sri Lanka

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Repatriation of Sri Lankan Refugees in South India

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During the course of the protracted war in Sri Lanka, several displaced victims of the war entered as refugees and sought asylum in Tamil Nadu state in South India. There are around one hundred thousand of Sri Lankan refugees still living in welfare camps or with their friends and relatives in India. Even though the Sri Lankan government and the UNHCR were willing to provide assistance to these refugees the reports indicated that not many returnees arrived from India in the post-war period. The theory stresses that repatriation of refugees is a significant task of a successful post conflict peacebuilding. The aim of this paper is to look into the process of repatriation during post war period. The primary and secondary data are used to qualitative analysis of this study. Some reasons were revealed by this study to discourage for returning of refugees. First they are still suspect on their own security in the Northern Province. Second problems of livelihood and loss of original lands in resettle process of Sri Lanka have been emerged as key issues to discourage them. Third as an external fact the Tamil Nadu politics also badly affected for repatriation. According to this, there was a poor flow of returning refugees from India, which shows that the entire process of repatriation is problematic. The government should give more attention to solve this problem with the help of the Indian government as well as the UNHCR.

Key words: repatriation, post conflict peacebuilding, refugees, resettlement

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Representation of femininity through the Śākta texts (*Śilpa Prakāśa* and *Śilparatnakośa*) of Early Medieval Odisha

Sujata Rakshit¹

Śilpa or art is an important marker of the world view of any culture. If we consider the art traditions in different parts of India as mirroring notions of femininity and masculinity prevalent in society, the sculptures in various regional contexts provide us with ample examples of such representations of gender. This paper endeavours to study the normative understanding of women and femininity as depicted in sculptures on the temple walls of early medieval Odisha. My research focuses primarily on temple iconography to understand representations of the feminine.

There are a large number of prescriptive works that throw light on art and architecture in early medieval India, but many of these refer to specific regional traditions.

Śilpa Prakāśa and *Śilparatnakośa* are the two main sources to interpret the iconography and sculptures on the temples of early medieval Odisha. This paper focuses on the idea of representation of femininity through the sculptures on temples and how the doctrines of the *Śāstras* moulded the idea of womanhood in early medieval Odisha. More or less these *Śāstras* uphold the details of various parts of the temple, detailing the underlying meaning of iconography and symbolism, by drawing on Tāntric and other ideas.

The erotic motifs were not only carved out on the Śākta temples, but Śaiva and Vaiṣṇava temples, were also decorated with these motifs. This paper tries to understand and analyze the influence of emerging Śākta cult on the sculptures, in general and specifically on erotic sculptures in the early medieval Odishan temples, on the basis of the Śākta texts.

Key Words: Early medieval Odisha, Temple sculptures, Śilpa Śāstra, Iconography, Śākta cult, Femininity.

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Re-structuring Education for Social Cohesion- Sri Lankan disclosure

Kithsiri P. Munagama¹, A. Ananda Jayawardana²

For the sustainable development of a country, it is essential to maintain peace & harmony. The thirty years old ethnic conflict in Sri Lanka has been hindered its social integrity. As a remedial measure, Citizenship Education and Governance subject (CE&G) was introduced to enhance the social cohesion through education. Curriculum content analysis, interviews and observing pedagogical practice are the major research methods. Existing competency levels of CE&G are highly related to democratic citizenship knowledge, but it has not enhanced the interrelationship among ethnic groups as a practice. 30% of The subject content does not directly related to address the social cohesion. Soft skills transformation related to cohesiveness is not in practice in the classroom. Teacher awareness programmes on soft skills were extremely poor and not sufficient to a behavioral change in students. Ethnic and language exclusive school and teacher education system do not encourage the mutual understanding of diversity. CE&G is to make compulsory with an orientation of practical sense in reconciliation and to accept diversity. Essential soft skills related to promote social integrity must be clearly identified and it is to be practiced. Teacher education institutions are to be re-structured to experience cultural understanding. The social awareness of cohesive school culture must be upgrade to accommodate and welcome diversity.

Key words: Social cohesion, Citizenship Education

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Role of Tea in Tourism Industry in Sri Lanka

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Geographical and climatic conditions of Sri Lanka have formed an appropriate possibility for tea cultivation including the areas in Central Province, Southern Province and Western Province. Historical evidences proved that tea tree has a long history dates back to the late 19th Century. Tea trails have been included in most of the tour packages offered by the travel agencies in their tour itineraries. Currently tea plantations, tea culture and tea production have been interacted by the tourism industry in the country. This study is based on the potential in tea concept for promoting tourism industry in all aspects of hospitality, nature tourism, culture tourism, community tourism, and tourism promotions. The research problem was to identify how the tea plant is being attracted by the tourists for their travel and hospitality related satisfaction. Research was conducted by accessing both primary and secondary data collective methods where 20 travel agencies were observed, 7 tea states were observed and 20 tourists were interviewed during the research. Tea products and plantations have been identified as primitive attraction by travel agencies and tour operators for promoting both nature and cultural tourism. Brochures and websites of the travel agencies have been designed with tea culture while the hospitality industry (accommodation units) offers another kind of warm welcome with tea service for their guests such as High Tea. At the tea factories organize specific tea trails where the visitors are given the opportunity to experience from planting tea crops, tea plucking and production procedure. Tea is one of the international symbolic icons in promoting Sri Lanka so that tourism industry is being attributed immense advantage from tea culture. Moreover new technological aspects can be attributed in the tourism industry for promoting tea based tourism experience.

Key words: Tea, Tourism, Sri Lanka, Promotion,

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Semantics of Region and ASEAN

S. C. Padmakumara ¹

The term 'region' with its manifold semantic manifestations and attributions has become a prominent academic ambiguity in the discipline of International Relations. As viewed by John Agnew, the idea of "geographical designation to the region" has become a frequent controversy among the academia. Hence regions are no longer considered as homogenized and pre-determined territorial units. Instead, now regions are mostly defined through constructive lenses by focusing on their ideational dimensions. Although numerous detailed academic inquiries from different scholarly lenses have been conducted, a systematic representation of the semantics of region is overlooked by the most of existing scholarly work in the field. Neither they are systematically arranged nor adequately ordered in a manner through which it can provide a logical understanding.

Therefore semantics of region have become more scattered and complicated phenomena. Given this complexity, it seems that defining or conceptual framing of the idea of region is a challenge. What are regions? How and why regions are formed? In what sense regions can be identified? These are some of frequent questions asked by the researchers who have been deeply involved in the matter. The answers given to these questions are also multiple and competing. As a result, generally accepted consensus among academia regarding the term 'region' is clearly absence.

Primarily this study looks for a schematic agenda through which these semantics can be logically arranged incorporating certain models of scientific representation such as taxonomies, tabulations, matrix analysis and mapping. In doing so, both qualitative and quantitative approaches will be incorporated into the study. In line with the proposed schematic arrangement; the study intends to reveal the existing patterns of understanding to the concept while adopting the case study of ASEAN. Further it examines how the ASEAN and its different institutional and policy aspects are applicable to multiple semantic clusters of the region. Finally the study proposes a holistic and systematic framework for semantics of the region through which ASEAN can be systematically explained.

Key words: Region, Semantics, ASEAN, Scientific Representation

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Sexual Deviance and Sexual Violence in the Vālmīki Rāmāyaṇa

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The Vālmīki Rāmāyaṇa, a popular epic of the brāhmaṇical tradition, delineates several behavioural patterns ingrained in different structures, formed to control the conscious and unconscious actions of humans. The recognized behaviour of humans was simplified and classified for the smooth functioning of a particular philosophy and morals. In this paper I will discuss how the Vālmīki Rāmāyaṇa set up norms for the regulation of sexual behaviour of the people. Forging the sexual behaviour was perhaps one of the primary motives of the narration. Sexuality had been visualized in a certain way that often contradicts the natural or untamed sexuality of the genders. Normative structures were more likely to guide the sexual behaviour of women and also to define the relationship of men and women. When we talk about gender and sexuality, relationships and norms of households become very important. In the narrative of the Vālmīki Rāmāyaṇa we find an account of royal households, where the king occupies the central position, whose authority was ‘unquestionable’ most of the time. It gives an account of the ways adopted by various societies for forging sexual attitudes and behaviour. Apart from kings, men in general secured the most influential place in the gender hierarchy of households. I will also discuss in this paper that how the patriarchal structures were acquiring ‘new’ shapes for attenuating the domestication of sex and how it was hidden beneath the idea of love, morality, dignity, glory and responsibility. To understand the nature of sexual loyalty and punishment I am considering the cases of four characters namely- Ahalyā, Urvaśī, Sītā and Rumā.

Keywords: Sexual, Deviance, Violence, Ramayana

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SOCIAL AND ECONOMIC CONSEQUENCES OF ROAD TRAFFIC INJURY IN SRI LANKA

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Traffic injuries are largely preventable and predictable; it is a human made problem. Today, road traffic injuries are the 9th leading cause of death in the world and, World Health Organization predicts that road traffic injuries will rise to become the 5th leading cause of death by 2030. In Sri Lanka there have been 2721 casualties road accident in the year 2011 death percentage 44 in same year (A publication of the Epidemiology Unit Ministry of Health), therefore in this analyze forces to publish, factors about this road accident and social and economic impacts, after the victims life changers, cost benefit analyzes about this accidents and find solutions to the problem and identify appropriate policies and programs that should be introduced and enforced. Finally this analyzes disseminated findings to policy makers, academics, other responsible bodies and the general public. In this reports I would like to analyze under the fine themes factors of accident, injuries, safety, policy. **The main objective** is to analyze the current Policies and Programs in Sri Lanka and identify measures that need to be taken during the Decade of Action for Road Safety. **The methodology** part of this research, The study is based case-study method while secondary data is also taken for the analysis. This means both quantitative and qualitative methods are meaningfully integrated. Finally **Recommendations for research** Studies should be made to assess the applicability of various quality-of-life scales for the purpose of describing systematically the long-term impacts of traffic injury. Surveys of the general population should be made at regular intervals to determine the incidence and prevalence of lasting impairments as a result of traffic injury. Studies should be made to assess the incidence of mild traumatic brain injury as well as its long-term socio-economic **Consequences and Recommendations for policy making** Reducing not just deaths, but also serious injuries. Programmed designed to treat accident victims who suffer long-term impacts of injury, like post-traumatic stress disorder, should be further developed and their effects evaluated.

Keywords - Accident, Injuries, Safety, Policy

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Social impact Management with regard to the kidney disease in Sri Lanka

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The chronic kidney disease (CKD) is one of the major health problems as well as an unresolved socio economic catastrophe in the North Central province of Sri Lanka. The socio economic and the environmental changes have been identified as main causes for CKD. The majority CKD patients are middle income earners and the cost of CKD has contributed to increase the poverty and stigma of those affected families. The inability to earn money, loss of productivity, and malnutrition are leading outcomes of CKD. The objective of this paper is to examine the coping strategies to overcome socio economic problems created through CKD.

Researchers have adopted a non-positivist approach in this study and data was mainly gathered using documentary evidence which is available in the form of academic and professional writings. Further, researchers have capitalized their own observations about the CKD. The findings reveal that, as a developing nation, the restrictions and the inadequate facilities in the health sector have been contributed to increase the number of CKD patients. The major hazard for the patients in the affected areas is poverty. The government and the other responsible bodies should provide source of economic resolution to engage in an income source other than agriculture. The transportation facilities for the patients to access the hospitals and clinics should be provided. Then the allowances for patients should be encouraged during the early stage of the illness which will cut off the hazard of the later stage recovery and the cost for the patient.

The appeal for the kidney donations through mass media is one direct coping strategy. The ministry of water supply and drainage has supplied small treatment Reverse Osmosis (RO) plants to clean groundwater from wells and provide the water to vulnerable communities. Moreover, rain water harvesting tanks have been provided to reduce the use of well water in certain areas. Further, corporate sector has also contributed in the form of corporate social responsibility. However, researcher found that these initiatives are lacking in terms of providing a psychological support for the people through counselling and religious means. Despite these contributions by both government and private sector the issue of CKD is still existing and growing. Therefore, it requires a long term policy oriented support with the participation of relevant multistakeholders.

Key words: chronic kidney disease (CKD), poverty, coping strategies

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Spatial and Temporal Variation of Drought Hazard in the North Central Province of Sri Lanka

L.M.A.P.Gunawardhana¹ and Lal Mervin Dharmasiri²

Drought is the deficiency of water for various purposes or shortage of rainfall within the expected period of time. There is no universal accepted definition for drought because it is vary from region to region. But impacts of drought are higher than other natural hazards because drought can be extended large geographical area. Sri Lanka is one of the countries which is highly prone to drought hazard. Especially, North Central Province (NCP) is wholly situated in the Dry Zone of Sri Lanka which receives less than 1750mm annual average rainfall therefore more vulnerable for drought. More than 95% of people in the NCP are depend on agriculture. Due to the frequent drought events they losses their agricultural production causing many socio-economic and environmental issues.

The study was aimed at to identify spatial and temporal variation of drought in the NCP using Standardized Precipitation Index (SPI) and Geographical Information System (GIS). Both primary and secondary data were used for this research. Primary data were collected using questionnaire, group discussion, interviews. Secondary data were collected from the Department of Meteorology. Nine meteorological stations covering last 60 years and the NCP selected for the study. GIS interpolation technique used to identify spatial distribution of rainfall over NCP. Time series analysis and calculating SPI were used to identify temporal distribution of drought in the NCP. Results highlighted there is a significant variation of spatial distribution of rainfall in the area. Negative SPI values clearly indicate drought events is frequent and increasing during the past six decades. It was evident that the farmers have been adopting different techniques to face the challengers of drought hazards.

Key words: Drought, Standardized Precipitation Index, Geographic Information system.

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State and Non-State Polities: A Historical Study of Early Medieval Tribal State Formation in Central India

Umesh Kumar Khute¹

The state is understood to be the product of a social contract, and is seen as constituting itself through various organs or institutions. If we see the nature of the modern state, it is very complex and still in the process of evolution, but when we see its historical development, then we would come across the 'non-state polities' which have contributed to, and accelerated, the expansion of state society, while retaining their specific political identity at the same time. To understand the dialectical process of state formation within the ambit of existing non-state polities, the focus will be on tribal central India where the two entities of state and non-state polities are still struggling for existence for the last one thousand years. Various political scientists, historians and sociologists have tried to understand this tussle between state and non-state, their ideological moorings and organisation, from a historical materialist position, or as a socio-cultural and ritualistic clash between the tribal and non-tribal societies. The aim of this paper is to explore and analyse: 1) the historical understanding of state and non-state actors and events in early medieval tribal central India; 2) the model of critical co-existence between these two distinct ideologies; 3) the tribal and non-tribal understanding of state.

Keywords: State, Non-State, Medieval Tribal State

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A study of blessings (Sethkam) composed connected to water in order to get rain in Nuwarakalawiya, Sri Lanka

R.M.Erandi Shashiprabha Manewa¹

The 'Nuwarakalawiya' (area bounded by Nuwara tank, Kala tank and Padawiya tank) in Sri Lanka is widely popular for farming and agricultural activities. Those agricultural activities are mainly undertaken during the two rainy seasons, namely the 'Yala' and 'Maha'. However there is no certainty that sufficient rain water will be received during these seasons to engage in their agri based livelihood. At times of such dry periods, they used to pray for 'rain', and such mechanisms are known as 'Sethkam'.

This study was aimed at identifying such mechanisms and their influence towards people's beliefs. Data were collected through a review of literature and interviews and analysed qualitatively. Twenty interviewees (Two bikkus, ten farmers and eight female villages) who are knowledgeable and experienced in using such mechanisms were interviewed.

The findings reveal that there are four popular mechanisms (types of sethkam) used to pray for the rain by the people in the Nuwarakalawiya. They are; Wesi Piritha, Subhuthi Bali Yagaya, Subhuthi Ambun Baliya and Niruwath Bali yagaya.

Moreover, it was identified that those mechanisms play a significant role in people's lives of Nuwarakalawiya. However there is a growing tendency to neglect those mechanisms by the younger generation in the region, hence there is an essential and urgent need to protect those mechanisms, in order to preserve the indigenous features of the Sri Lankan culture, and to ensure the sustainability of the community.

Keywords – Nuwarakalawiya, Sethkam, Wesi Piritha, Subhuthi Bali Yagaya, Niruwath Bali yagaya

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Tārā: From Attendant to Bodhisattva Changing Role of the Feminine

Megha Yadav¹

Gender has always been one of the most curious, discussed issues among historians, yet, we are as far from solving this puzzle as the ancient theorists who focused on it. With these questions, this paper is trying to look at these early themes about gender and sexuality in the Tantric forms of Buddhism that became influential in India around the sixth century C.E. and later flourished in Tibetan Buddhism. The objective of the paper is to understand gender relations, within the Buddhist community, and this will be done based on the religious practices of Tantric Buddhists and by looking at the divine pantheon of Tantric Buddhism and the development of female fraction in the pantheon. The paper will focus on one particular goddess i.e. Tara *Devī*. The research will trace the transformation of her role in the Buddhist Pantheon, from her being one of the attendants of *Bodhisattva* Avlokiteśvara to her becoming a *Bodhisattva*. Moreover, she is the one and only female Bodhisattva, the highest divine status which can be achieved within Tantric Buddhism. It is this transformation which will be the centre of this research. This paper is working with the idea that changes in the mythological world reflects the changes which are taking place in the actual world and hence, the recognition of the feminine divine within religions reflects the change in the social perception of gender. Hence, at large this paper is trying to understand and trace the changes in the social perception of gender, from a historical perspective.

Keywords: Bodhisattva, Gender relations, Buddhist

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The ancient manuscript available in Temple Libraries in Marata district

H.K.I.Sewwandi¹

Religions establishment such as temples and monasteries in Sri Lanka could be recognized as knowledge an information centers where manuscript are collected organized and disseminated for the benefit of people. In these institutions the knowledge produces by the nation. The collected and protected in the formed manuscripts.

Monastery libraries are common to all districts in the country. Among this district a Matara district places a significant role in the collection and preservation of manuscript culture in Sri Lanka.

The main objective of the research was to identify the ancient manuscript collection in the temple libraries in Matara district. The other objectives were to identify the type of manuscript available and the subject content in the manuscript. The method of research was the survey method and data for the study was gathered from a selected sample of 16, temples in a Matara district.

Primary data was collected using direct participation, interviews and observation. Further secondary data was gathered through literature survey.

It was identified that these collection include Ola leaf as well as paper manuscripts. In addition few text books, newspapers and periodicals were who found in these collections.

Further it was revealed that majority of temples in the sample had palm leaf manuscripts on varies subjects such as Buddhism, history, indigenous medicine, astrology, astronomy.

Keywords – Temple Library, Ola leaf, Manuscript, intangible cultural heritage, indigenous knowledge

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The Difference of concepts of the societies of Pre-Media and Post-Media: Absence of a moral and ethical justice in Sexuality in online media society.

Manoj Jinadasa¹

With the invention of mass media in the 18th century in the face of the Industrial Revolution, press media was a catalyst in providing a platform for many socially marginal groups and those with limited access to means of conducting social dialogues in conventional, non-democratic, capitalistic societies. The media oriented culture formed many post-media concepts and phenomena, such as freedom, media freedom, rule of law, democracy, liberty as well as liberty in sexual behaviors. Pre-media concepts like aesthetics, classics, philosophy, morals, and ethics were inadequate in understanding the occurrences and sensations of post-media society. This phenomenon is highly significant in contemporary online media culture.

This study investigates the use of Google and Facebook in Sri Lanka with special reference to the rapidly expanding behavioral changes of sexuality shown in these online media channels. Despite the fact that Sri Lanka, which has long been a Buddhist religious society which claims to be highly moral and ethical in social inter-relations, online media has provided an easy outlet for enjoying a variety of sexual behaviors. Subsequently, online service providers such as Google, Yahoo, Facebook, and other forms of social media have been a place for a sexual freedom that provides more same-sex opportunities among interested groups. Further, communication connectivity and the information contribution of online service providers has provided avenues for a large amount of material content for pornographic and many audio-visual sexual texts.

This study was conducted using qualitative methods of textual analysis, observation and in-depth interviews during a period of twelve months from June 2014 up to June 2015. Twenty textual analyses were conducted using selected sites of pornography in Google and Yahoo. Another twenty textual analyses were conducted using fake Facebook addresses to observe how others respond to close sexual communications. In addition, twenty in-depth interviews were conducted using Facebook users aged 18 to 24.

Finally, this study assumes that though Buddhist religious societies have long been respected as morally and ethically reputed well-cultured societies, when they are given opportunities for inter-personal relations in the OSP channels, their hidden sexual interests are well-communicated without limitations or restrictions. However, conventional pre-media concepts of ethical and moral behaviors are insufficient to understand or explain these new behaviors or trends, which have emerged as a result of this new media culture.

Thus, pre-media concepts of ethics and morals do not make pragmatic sense in the real world practice of the online media society. The role of the online service providers has been shaped by the identification of this natural social anthropology of highly religious cultures. In other words, these new media platforms are instrumental in exposing many inclinations of human behavior of sexual interest, thus, challenging the maintenance of conventional morals and ethics in the new media world.

Key Words : Pre-media, Post-media, moral and ethics, Sexuality, Freedom.

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The human effects on dry mixed evergreen forest cover surrounding the Village-based irrigation system in Sri Lanka.

R.A.Dhanushka Ranaweera¹, E.G.Mangala Jayarathne²

Natural vegetation is vastly different from the land escapes that make up various types of forests. Dry mixed evergreen forest (DMEF) can be seen around the village based irrigation systems (VBIS) in the dry zone of Sri Lanka. The main human impact of dry mixed evergreen forest is shifting and burning cultivation. This is increased since 1980. However, this research investigated the major impacts of human activities on dry mixed evergreen forest cover in Sri Lanka. A total of 40 households were face to face interviewed for primary data collection in Mahakanadarawa Grama Niladari Division in the Mihinthale Divisional Secretariat Division. The data analyzed from descriptive statistics and also used starlight images for comparing land use pattern. The research confirmed that shifting and burning cultivation as a major impact in DMEF. Furthermore it is revealed that there is a negative relationship between educational level and employment. Land disintegration also observed as a contributing factor in the reduction of DMEF. The Chena cultivation must be managed with providing alternative employment opportunities before its getting into the alarming level of destruction of DMEF.

Key words: Dry Mixed Evergreen Forest, Disturbance, Shifting and Burning, Irrigation systems, Land use pattern

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The Influence of Animal Visibility on Visitor Experience: with special reference of Dehiwala Zoological Garden, Sri Lanka

L.I.A.S. Thilakarathne¹, Virmma Thilakarathne²

The zoological gardens founded from the 19th century onwards, claimed not only to educate and entertain their audiences, but also to serve science by providing exotic animals. Zoos nowadays have always generated a mixed feelings when it comes to education and equity among all creatures. While the zoo industry is starting to blossom, some may argue that the idea of keeping animal in the cage may have been divorced from our thoughts in the first place which is to educate and protect. As more natural environments are affected by development, zoos represent one type of urban open space that is increasingly recognized as a place for visitors to reconnect with nature. Millions of people visit zoos on an annual basis but we know very little about zoo visitor satisfaction with animal visibility; a lack of animal visibility may negatively impact a zoo visit. The primary purpose of this study was to examine the effect of animal visibility on visitor experience. Specific objective of this study was understand the relationship between visitor experience and exhibit design. The researcher carried out an extensive literature review to provide conceptual background of the study and formulated a conceptual model. Simple random sampling method was used and selected 100 visitors for the sample of this study and data were collected through questionnaire. Associating SPSS 22.0 software and based on univariate analysis and bivariate techniques the data were analyzed. The results of this study suggest that there is a significant relationship between animal visibility and visitor experience. Based on that results indicate exhibit design significantly influence for visibility and visitor experience.

Key words: Visitor Experience, Animal Visibility, Exhibit Design, Zoo

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The progress of the Participatory Development entries in Sri Lanka.

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Participatory Development seeks to engage local population in Development Projects. Participatory Development has taken a variety forms since 1970. It is emerged as an important part of the ‘basic needs approach’ to development. The main objectives of the Participatory Development are seeks to give the poor a part in initiatives designed for their benefit. We can introduce it, as a Multi-Dimensional development concept of the world.

The main objective of the research was to identify the progress of the Participatory Development entries in Sri Lanka. The other objectives are studied the participatory development projects in the world & Sri Lanka and identifying the exhausted reasons to the participatory Development.

Primary data was collected using direct participation, interviews and observation. Further secondary data was gathered through literature survey.

Sri Lanka has more experience about participatory development. Integration Rural Development Project –IRDP, Rural Development Training and Action Research (Change Agent Program), Janasaviya, Samurdhi, and Divineguma are the most popular project of them. But we can’t achieve the main objectives of the participatory development projects. As the result of that we have to face the inequality of development. There many reasons happen to this situation. Such as, Unawareness about the concept of the project officers can’t choose right beneficiaries for the projects and several other reasons are exhausted to Participatory Development in Sri Lanka.

Keywords – Development, Participatory Development, poor, inequality, beneficiaries

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The Relationship between Public Interest And Structural Aspect of Sport News Reporting

W.M.D. Sahajeewa¹

News reporting media is one of the most powerful forces for shaping public opinion. Newspaper headlines, as a subgenre of media genre are of importance in news discourse. As an opening section to their relevant main text, headlines have been ascribed different functions. Headlines have been referred as categories forming “the summary” of the news reports.

This particular study titled “The Relationship between Public Interest and structural Aspect of Sport News Reporting; with special reference to Diwaina and Dinamina newspapers” This study tries to identify how effects for public interest when they are choosing the newspaper on reference of headlines of the main sport page in Sri Lankan daily Newspaper. The researcher used content analysis as the methods of the Study when selecting in the news headlines. And interviewed 25 newspaper readers and analyzed by statistically usage of MS Excel. As a sample, Researcher selected main sport news page’s main headlines in both of Diwaina and Dinamina in 2012. There are 104 news headline was collected randomly and mixed sample method. Also date collected by Old reserves of National Library and National Archivist Department Sri Lanka. The researcher confirmated that more newspaper readers like to read main sport page if it is very structured and very attractive than other one.

Key words; Public Interest, structural Aspect news reporting, Diwaina and Dinamina

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**The use of concept of beauty in fashion advertisements for persuading customers and the semiotics included in it
(An analysis conducted based on 04 fashion jewelry advertisements with relevance to electronic media)**

Dineesha Liyanage

When studying about fashion, it is crystal clear that there are multifaceted forms of it. In the regard the word “fashion” can be applied to male and female items such as cloths, accessories, jewelry, hats, and shoes and also in arts and architecture. In this study, the sole attention is paid for the fashion jewelry.

The main objective of this research is to unravel the use of beauty as a concept in fashion advertisements and its semiotics and how they are working to persuade customers. Research problem of the study is to unravel the use of the concept of beauty in fashion advertisements for persuading customers and symbols used in it. Hypothesis of the study is that an effort has been taken to inspire the customer with the concepts of love, lust and sexuality emanating from the models used in fashion jewelry advertisements.

The method of content analysis is the major method of the research. Accordingly, the content analysis was done based on 4 advertisements with reference to electronic media. The major conclusion of the research is that in the advertisements of Jewelers, an effort has been taken to inspire the customer by the use of its models, evoking semiotics such as love, lust and sexuality in terms of the concept of beauty.

Key words - persuasion, fashion jewelry advertisements, the concept of beauty, semiotics.

Traditions of Living Histories: Modular Communal Contexts as Learning Labs for Design Education

Prasanna Pitigala Liyanage¹, Shauri Hettiarachchi²

Design education requires the transferring of knowledge of a wide variety of subjects from fields of science to the arts while developing a sense for empathy with society and design thinking. In the foundation level of the Bachelor of Design degree at the Department of Integrated Design at the University of Moratuwa, Sri Lanka, the potential of locally existing contexts is used as the primary resource for learning.

Empathising with society begins with self-realization. Knowing the traditions that has created the manner of present societies that we are a part of, is of essential importance in this process. The practice of “Gammadu Shanthikarma” due to its historical roots and its lively existence in the current society provides an ideal ground for students to grasp social patterns of converting belief systems into material and non-material components of culture.

The research done under the grant SRC/ST/2015/05 provided by the Senate Research Committee of the University of Moratuwa explored the research question of; how and in what ways can traditional practices in communities be used to understand social patterns in the foundation level of design education? Empirical data was primarily gathered through participatory observations. Gathered data was triangulated against the success of student realization of curricular content. While on-site, students used various methods of measuring and recording, a final exhibition inclusive of documentation was used for assessing.

Key words: Context based Learning, Design Education, Learning Labs, Sociocultural Patterns

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විදේශ වෙළඳාම ශ්‍රී ලංකාවේ දේශපාලන පසුබිමට බලපෑම් කළ අන්දම

ජේ.එම්. සුධර්මාවතී J.M. Sudharmawathie ¹

විදේශ වෙළඳාම හා මෙරට ආර්ථික තත්ත්වය, විදේශ ආක්‍රමණ නිසා මෙරට දේශපාලන පසුබිමෙහි ඇතිවූ ගැටලු සහිත පසුබිම යන තේමා පිළිබඳ බොහෝ අධ්‍යයන සිදුකර ඇත. එහෙත් මෙවැනි පර්යේෂණයක් පිළිබඳ අවධානය යොමුකර නොමැත. එහෙයින් මෙම පර්යේෂණය කෙරෙහි මෙහිදී අවධානය යොමුකර ඇත. මෙම පර්යේෂණයේදී ප්‍රාථමික හා ද්විතීයික මූලාශ්‍රය ඉවහල් කරගනිමින් තොරතුරු එක්රැස් කරගන්නා ලදී.

ශ්‍රී ලංකාව පිහිටීම අතින් ලොව අන් රටවලට වඩා සුවිශේෂී ස්ථානයක් හිමිකරගෙන ඇත. ඉන්දියානු සාගරයේ වෙළඳ මාර්ග ආසන්නයේ කේන්ද්‍රීය ස්ථානයක පිහිටා තිබීමත්, ස්වභාවික වරායන් කිහිපයක් තිබීමත් දිවයිනක් වීමත් නිසා අතීතයේ සිට ම ලංකාව පෙර අපර දේශ රටවල භාණ්ඩ හුවමාරු කරගන්නා වූ මහා වෙළඳ මධ්‍යස්ථානයක් විය. මේ නිසා ලොව විවිධ රටවලින් වෙළෙන්දෝ මෙරටට පැමිණියහ. මෙලෙස පැමිණි වෙළඳුන් මෙරට දේශපාලන පසුබිම කෙරෙහි බලපෑම් කිරීමට සමත් වූ අවස්ථා කිහිපයක් ලංකා ඉතිහාසයේ සඳහන් වේ. ඒ දකුණු ඉන්දියානු චෝළයින් හා චීනය යි. චෝළයන් මෙරට ආක්‍රමණය කිරීමේ අරමුණින්ම කඩාවැදුණු අවස්ථා රැසකි. ඒවා ආක්‍රමණ ලෙසට සිදු කිරීම නිසා මෙරට පාලකයන් ඒවාට මුහුණදීමට ආරක්‍ෂක විධිවිධාන සකස්කරගෙන තබාගැනීමටද පියවර ගෙන තිබිණි.

චීන ලංකා සම්බන්ධතා පහළොස්වන සියවස දක්වා කිසිදු විටෙක මෙරට දේශපාලනයට මැදිහත් නොවීය. එහෙත් පහළොස්වන සියවසේ මුල් භාගයේදී සිදුකළ මැදිහත්වීම මෙරට ඉතිහාසයේ ගැටලු සහිත පසුබිමක් ඇතිකර තිබේ.

මෙම තත්ත්වයන් කෙරෙහි අවධානය යොමු කිරීමේදී එතුළින් ඇති කළ බලපෑම් මෙරට දේශපාලන ප්‍රවාහයේ ගලා යාමට ප්‍රබල බාධකයක් වී ඇත. එපමණක් නොව, වෙළඳාම ගැටුම් හා යුද්ධ ඇති කිරීමට මුල් වී තිබේ. එමෙන් ම ඔවුහු මෙරට දේශපාලන පසුතලයේ බලවතුන් වීමෙන් මෙරට ආදායම් ඉපැයීමේ මාර්ග, ආදායම සෘජු ව හා වක්‍ර ලෙස හිමි කරගැනීමට සමත් වූහ.

ප්‍රමුඛ පද - විදේශ වෙළඳාම, ශ්‍රී ලංකාව, දකුණු ඉන්දියාව, චීනය, යුද්ධ, ආර්ථික තත්ත්වය

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**විදේශ ආක්‍රමණ හමුවේ සිංහලයන්ගේ සංග්‍රාමීය දක්ෂතා
(අනුරාධපුර පොළොන්නරු යුග ඇසුරින්)
පී.එම්.යූ.ප්‍රේමරත්න¹**

ශ්‍රී ලංකාව ඉන්දියන් සාගරයේ කේන්ද්‍රස්ථානයක පිහිටීම නිසා වරින්වර මෙරටට ආක්‍රමණ එල්ල වූ බව පෙනෙන්නට තිබේ. ඒ අතර නිරන්තරයෙන් ලංකාවට ආක්‍රමණ එල්ල වූයේ දකුණු ඉන්දියාවෙනි. අසේල රජු කල සිදු වූ එළාර ආක්‍රමණය, පස්වන මිහිඳු රජු කල එල්ල වූ පළමුවන රාජ රාජ, රාජේන්ද්‍ර චෝල ආක්‍රමණ මේ අතර විශේෂයෙන් කැපී පෙනෙයි. ඒ අනුව මේවාට මුහුණ දීම සඳහා නිතැතින් ම සිංහලයෝ සංග්‍රාමයේ දක්ෂ වූහ. මෙම අධ්‍යයනයේදී විමර්ශනයට භාජනය කෙරෙන්නේ විදේශ ආක්‍රමණ හමුවේ පැරණි සිංහලයන් දැක්වූ සංග්‍රාමීය දක්ෂතා මොනවා ද යන්න යි. පර්යේෂණ ගැටලුව වූයේ ඒ පිළිබඳ පරීක්ෂා කිරීම යි.

සිංහලයන් තුළ පැවති සංග්‍රාමීය දක්ෂතා හඳුනාගැනීම, එම දක්ෂතාවන්හි සුවිශේෂීත්වය, සටන් කිරීමේදී භාවිත කළ ශිල්පීය ක්‍රම යනාදිය සම්බන්ධයෙන් අධ්‍යයනයක් සිදු කිරීම මෙම පර්යේෂණයේ අරමුණ යි.

එහිදී විශේෂයෙන් ම ප්‍රාථමික මූලාශ්‍රය කෙරෙහි අවධානය යොමු වූ අතර ද්විතීයික මූලාශ්‍රය ද පරිශීලනය කරමින් නිරවද්‍ය දත්ත රැස් කරන ලදී. ඒ අනුව සංග්‍රාමයකට සූදානම් වීමේ තැන් සිට එය දියත් කර අවසානය දක්වා කරුණු විමර්ශනය කිරීම තුළින්, අනපේක්ෂිත අවස්ථාවන්හි එල්ල වූ ආක්‍රමණ සඳහා සිංහලයා මුහුණ දුන් ආකාරය විමර්ශනය කිරීම තුළින් සිංහලයන්ගේ සංග්‍රාමීය දක්ෂතා පිළිබඳ ව අනාවරණය කර ගැනීමට හැකි විය.

ඒ අනුව මෙහිදී එළඹී නිගමන කිහිපයකි. එනම්, මෙරට රජවරු සතුරු ආක්‍රමණයන්ට මුහුණ දීම සඳහා ආරක්ෂක හමුදා සූදානම් කර තබා තිබේ. බල සේනාවන්හි විත්ත ධෛර්යය සහ සතුට වර්ධනය වන ලෙස මෙරට රජවරු කටයුතු කර තිබේ. බෞද්ධ රටක් වූ හෙයින් විෂ පෙවූ ආයුධ භාවිත කර නැතත් ඒවාට මුහුණ දීම සඳහා යම් යම් උපක්‍රම භාවිත කර තිබේ. එමෙන් ම දක්ෂ රහස් ඔත්තු සේවාවක් ද පවත්වාගෙන ගිය බවට නිගමනය කළ හැක ය. සමස්තයක් වශයෙන් ගත් කල විවිධ ආක්‍රමණිකයන්ට මුහුණ දුන්න ද සිංහලයන් තුළ පැවති මෙම යුදමය කෞශල්‍යය නිසා නැවතත් නිදහස් රටක් වශයෙන් ඉදිරියට ඒමට ඔවුන්ට හැකි වූ බවත් අවසාන වශයෙන් නිගමනය කළ හැකි ය.

ප්‍රමුඛ පද - සංග්‍රාමය, උපක්‍රම, ආයුධ, ආක්‍රමණ

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United Nations and Rights of Child, Focus: Syrian Refugee Children

Chitra Kanungo¹

“Where the mind is without fear and the head is held high” words of the Indian poet Tagore reflect the very essence of Human Dignity. Founded on the doctrine of rights based on natural laws, Human Rights are universally accepted as those minimal rights that individuals need to lead a life of their choice – their protection and promotion is the first responsibility of the government. The aim of a universal system of Rights is to revise and restore human values in all societies, where political, racial, social and economic oppression exists and to wipe out human misery, to enrich and refine human life in all parts of the world, with special attention to the child – the future of Life itself. After the horrors of suffering in the last two world wars, the United Nations grandiosely adopted the Universal Declaration of Human Rights on 10th December 1948. Art 1 of the U.N. charter states that all human beings are born free and equal in dignity and rights and that being “endowed with reason and conscience”, they should behave in a spirit of brotherhood. From time to time, the U.N. has made several declarations for effective enforcement of rights. Of particular interest to us is the Convention of the Rights of the Child (1989). The Convention, the focus of this study, is based on the pledge --- - “Mankind owes to the child the best it can give”. The U.N. declaration of the Rights of the Child is its most comprehensive document. Yet, the child continues to be neglected. 67.4 million Children are out of school, their access to health care is negligible and they face alarming security risks in a strife – torn world, despite Art-20 &22 which provides for Rights of vulnerable children like Refugees to special protection. Issues of Rights of children, therefore, are not a matter of legality alone but attitude and an assertion of social justice. The main focus of this paper will be to analyse the provisions of the Rights of Child in the U.N. Charter and to highlight the fact that the child continues to be deprived of his basic rights. The present study is based on the Library method of Social Science Research. The data has been collected from U.N. documents, reports, websites, books, journals and newspapers.

Keywords: Human values, vulnerable, special protection

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Urban Behavioural Patterns Which Effect on Non Communicable Diseases (NCDs): Case Study of Pattiwila area, Biyagama Divisional Secretariat Sri Lanka

E.A.D.Anushka Gunapala¹

Non communicable diseases (NCDs) are the most common in discussing story in Sri Lanka recently. According to Register Generals data in 2001, the NCDs accounted for 71% of total deaths in Sri Lanka. With the rapid increase of urban landscape, lifestyles of the people has changed and facilitate with lot of technical accessories to get rid of busy and stereotyped daily routine. Especially lack of exercises and food pattern make lot of urban people victim of NCDs.

The aim of this study is find out the urban behavioural pattern which effect on NCDs and identify the most common NCDs among urban people. The sample area of this study is Pattiwila urban area situated in Biyagama Divisional Secretariat, Gampha District. 5% of families of the area selected as a sample for this study. Primary data collected by Questionnaires and interview method. Data was analysed by using qualitative and quantitative methodologies.

The outcome of this study reveals that less of exercises and unbalance food style with lot of flour foods are the major reasons for being a victims of NCDs in urban landscape. Stereotyped way of urban life and attitudes caused to majority of urban citizens keep away from exercises. Some of the rapid constructions also badly effected to the active life style of younger generation due to restricted to the playground and recreation spaces. Awareness programs and institutional actions, change of the food pattern and balance way of city planning are the vital need to normalize this situation with the rapid increased of urbanization.

Key words: Non communicable diseases (NCDs), Urbanization, Urban behavioral pattern

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Use of Electronic Media for Academic Purposes among the University Students: special reference with faculty of social sciences, University of Kelaniya.

J.M.S Dilinika¹, M.C.N Jayawardana²

Within the Information society, electronic media are playing vital role. It has revolutionized the information system and sessions. Electronic media comes with various forms such as E-books, online databases, CD, DVD and etc. Through the electronic media Students make aware himself with the current information and updates. The study investigated the usage of electronic media by the students. The objectives of the study were to examine how the university students search required information from the electronic media and to identify the usage of electronic media for academic purposes and to ascertain the problems encountered by the university students in the process of searching of information.

Structured questionnaires were distributed among 100 first year undergraduates in the Faculty of Social Science, University of Kelaniya. Questionnaire was the main data gathering method.

It was identified that from the total population only 44% students use electronic media for their academic works. According to the results 20% percent of students use e-books to search information, 8% percent use online databases and 10% Percent of students use e-Journals. Another 6% use CD/DVD to find academic information. But, 56% Percent of students didn't appear to use electronic media for their academic works. Major Reason for this issue is students used to go for the university library for search information without electronic concept. Other Problems were lack of awareness about electronic media, Connection problems and Students used to surf internet only as a social media.

Suggestions were made to conduct training sessions, workshops in order to awareness among stakeholders.

Key words: Information, Electronic media, Library

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Use of Electronic Resources For Buddhist Studies: A Case Study

Bodagama Sumana¹

Electronic resources are two types. They are online e-resources and off line e-resources. An "electronic resource" is defined as any work encoded and made available for access through the use of a computer. It includes electronic data available by (1) remote access and (2) direct access (fixed media). In other words: Remote access (electronic resources) refers to the use of electronic resources via computer networks. (AACR2, 2002 edition; glossary) Off-line e-resources are CD-Rom, Thipitaka -CD, Mettanet - CD, Dhammapada-CD, Diskettes, VCD/ DVD, e-card. Online e-resources are Institutional & Personal website, OPAC & web OPACS, Electronic Databases e-publications, e-books, e-journals, and e-prints, e-articles. There are Encyclopedias, full-text journals, Newspapers, company information, e-books economic data "digital images" industry profiles, market, Research, dictionaries in electronic resources. This study is on how to use electronic resources for Buddhist Studies.

We can find information on Buddhism from Chatta sangayana CD, Dhammapada CD and other Dhamma CD. Today we have computer and internet facilities. Therefore, without books, we can study on Buddhism. As a web page, Buddha Net covers all Buddhist resources. There are Buddhist manuscripts, suttas, jathaka tales, online courses and rare books such as Vimukthimagga. E - Library concept on web helps to reader every time to find and search Buddhist sources. Pali Canon and other important Dhamma books are available as PDF, e-books, and e- journals in web pages. Example: Buddhist studies virtual library, Pali text society and vipassana research institute. These Libraries provide access to a variety of electronic books, as well as the other printed works (such as essays, poems, or historical documents). Some of these electronic books and texts are part of large, searchable databases.

Key words: Electronic resources, Buddhist studies, online, offline, Computer

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Vidyalankara Pirivena of 1940s; is it an alternative monastic model?

Ven. Galkande Dhammananda

Vidyalankara Pirivena was founded in 1875 and subsequently it developed into one of the two leading monastic education centers in Sri Lanka. The zenith of its development as an education center was marked by its promotion into a full pledged university in 1959. Apart from the contribution made for the development of education in Sri Lanka this particular monastic institution was engaged in direct 'political activities' particularly after 1940s. This very 'unconventional political engagement' of the monks of this institution has been interpreted by researchers either as a 'deviation from the original role of the monks' or as 'doing justice to the historical nationalist role of the monks'. However, in this present research the above intervention by the monks of Vidyalankara is looked at afresh in a different angle. All the available literature produced by the Vidyalankara monks and their opponent schools and groups, biographies of the relevant people, literature produced by the leftist political parties, relevant reports and proceedings of State Council and the newspaper articles are the major sources used in this research. Apart from that certain audio and visual material would also be utilized. The vision and the mission proposed through all the engagements of the Vidyalankara monks in 1940 are tested against different Buddhist monastic models that have been inferred through historical researches and deduced the conclusion that it is not just a mere 'political engagement only' but a profound monastic modal that can be understood as an alternative to the monastic systems existed at the time.

Key words: Vidyalankara, Monastery, Political Monks

Web GIS Based Data Collection System for Environmental Managers

D.M.S.L.B. Dissanayake¹

Web Geographical Information System (GIS) is a new pattern for delivering GIS capabilities into the hands of the people excepting geographical boundary and one pathway to access the Global village which is new paradigm in the cyber space application. GIS related spatial field data collection is required for many reasons. such as Ground Control Points (GCPs), Sampling, applications, current database updating, data aviation...etc . Traditional field data collection methods are time and capital consuming heave task which is not suitable for addressing in emergency case. In addition to that, traditional data collection method deal with paperwork and point to point data collection practices which is burning many human hours.

The created system will be facilitated to collect point data with other attribute that are define by the programmer and Google API system. Web system was created using HTML 5 and PHP language. Google map class library and java script library were used to render the Google map to the web GIS system and My SQL database is used to store the data. In addition to that, Several software packages have been used such as adobe dreamweaver, adobe photoshop, PHP editor,Java,Ajax,ArcGIS,Arcserver.....etc.

Web administrator will be able to change whole content or part of the content of the system and define user privileges to access the system. Any user will be able to enter the data to the system under the privileges of the administrator. In same platform user will be able to edit, delete and update data that area entered by himself. The system will facilitate to download collected data as a Ms Excel data sheet and KML file which are supported to Arc GIS and other GISsoftware.

Key words :- Web GIS, Cloud GIS, GIS modelling, KML, Database system, GIS program.

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WOMEN & HUMAN RIGHTS VIOLATIONS IN INDIA:

Focus on Manipur and Odisha

Padmalaya Mohapatra¹

The French Historian Michel Foucault highlights sexuality as a construct and presents its genealogical history. For him, sexuality is a mode by which one understands the exercise of power and how a certain kind of 'sexual' subjectivity encourages the disciplinary mode of power. By crafting a certain kind of imagery for the female body and its sexual desires the woman is absorbed into the normative structure of society that is defined by patriarchy. Patriarchy is an endemic historical and cultural practice that exacts an all-encompassing hegemony. Moreover, Sylvia Walby defines Patriarchy "as a system of social structures and practices in which men dominate, oppress and exploit women". When Walby uses the term social structures she is implying that this system of control, domination and oppression is not biologically determined. Contextually 'Patriarchy' is based on a system of power relations which are hierarchical and unequal where men control women's production, reproduction and sexuality. Acceptance of traditional masculine gender roles in a patriarchal society is closely connected with escalating violence towards women. Several complex and interconnected institutionalized social and cultural factors have kept Indian women vulnerable to the violence directed at them, all of them manifestations of historically unequal power relations between men and women actors. Coming to north-eastern region there is an ongoing struggle by people trying to establish their right to autonomy which has led to political instability, strife and outright violence in the region. Ethnic conflict, arm conflicts, insurrection movement and issue of poverty and injustice is inextricably interlinked and have its impact on status of women. Although women in North-East India enjoy greater mobility and visibility than women of other communities in the country data collected by the North East Network suggests that violence against women is on the rise in the North-east. The ongoing armed conflict situation prevalent in the North East India has intensified the violence faced by women which takes the form of sexual, mental or physical abuse, killings and clashes. The region under the shadow of conflict has witnessed a resurgence of patriarchal values and norms which have brought with them new restrictions on the movement of women, the way they dress and more overtly physical violence such as rape which is systematically used as a tactic against a particular community. In this paper an attempt has been made to make a comparative study with the scenario in Odisha where the onset of liberalization has not helped the larger cause of gender sensitivity in any way. The National Crime Records Bureau has reported 6249 cases of violence against women including 799 rape cases, 547 abduction cases, 334 dowry deaths and 1671 cases of cruelty by husband and relatives of women in Odisha.

Keywords: Sexuality, Vulnerable, Unequal Power Relation

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Women in Sri Lankan Historiography

A.M.M. Chandrika

The study of women runs through different subject streams. It would seem that the vision about women changed with time in the field of history. This state can be further determined by the investigation of views about women in historical writings. It appears that in the modern historical discussions about the woman, the discussions of them are done in a novel way using the concept of feminism in a broad perspective. However, the difficulties faced by the historians to bring forth the discussions about the ancient woman are that the sources do not provide considerable opportunities for the matter. Therefore, the history about the woman can be shown as a social phenomenon isolated from the popular historical streams and the standard sources. The authors who wrote books on ancient history from a male point of view rarely gave the personal names of women unless if she were a mother of a majestic ruler or a wife who safeguarded her chastity. Accordingly, the objective of this study is to investigate the difficulties which historians faced in constructing the women's history of Sri Lanka.

Dīpavaṃsa and *Mahāvāma* which are considered as the main two chronicles in describing the history of the island, and using the other literary text and archaeological data and also by considering the researchers conducted in Sri Lanka about the woman, it is important to investigate the quantitative and qualitative profile of woman in Sri Lankan historiography.

Dīpavaṃsa which is considered as the oldest chronicle to establish the traditional history of the island takes an important position in order to establish the history of woman, because it is considered that the authorship of the book is attributed to Buddhist nuns. But the traditional acceptance is that when establishing the history of women the details mentioned in the *Mahāvāma* and other literature books written thereafter about women were very little and therefore, their contribution is very limited.

In this context, while it is said that the participation of women in the political, social, economic and cultural structures was comparatively low but about the participation of women was mentioned to a certain extent in each field. But the majority bears the opinion that when the ancient history is written justice was not caused to the women. Accordingly, when finding about the quantitative and qualitative state of the women in historiography and when investigating the status of women in whole historiography it is clear that the contributions of sources are comparatively lower when establishing the history of women than the establishment of political and religious history and it is clear that the same factor will hinder the historical researches carried out by historians.

Keywords: Historiography, Women's History, Historical Sources, Feminism

ශ්‍රී ලංකා සමාජයේ අභිචාර භාවිතයන්ගේ නව ප්‍රවණතා පිළිබඳ සමාජ විද්‍යාත්මක අධ්‍යයනයක්.

ඉන්දිකා රාජපක්ෂ¹

මෙම පර්යේෂණයේ ප්‍රධාන අවධානය යොමුවන්නේ ශ්‍රී ලංකාවේ නාගරික ප්‍රදේශවල අභිචාර ක්‍රම භාවිතාවන්ගේ නව ප්‍රවණතාවන් පිළිබඳ අධ්‍යයනය කිරීමයි. මානව ශිෂ්ටාචාරයේ ආරම්භක අවධියේ පටන්ම මිනිසා සතු වූ මානව හැසිරීමක් වශයෙන් අභිචාර ක්‍රම හඳුනාගත හැකිය. ප්‍රාථමික සමාජයේ ජනයා තමන්ට මුහුණ දීමට සිදු වූ භෞතික සහ අභෞතික සංසිද්ධීන්වල හේතුවල සම්බන්ධතාව තේරුම් ගැනීමට අවට පරිසරයේ සිදු වූ ඇතැම් දෑ අවබෝධ කර ගැනීමේදී ඒවා තුළ කිසියම් අද්භූත බලවේගයක් ඇති බැව් විශ්වාස කළේය.

ෆ්‍රේසර් සඳහන් කරන්නේ මානව පරිණාමයේ ආරම්භයේදී ඇති වූ පාරිසරික වෙනස්වීම් හේතු කොට ගෙන මිනිසා අභිචාර කෙරෙහි යොමු වූ බවයි. ප්‍රාථමික මිනිසා තම බුද්ධියට ගෝචර නොවන දේවල්වලට කිසියම් බලයක්, ගෞරවයක් ආරෝපණය කරගත් විශ්වාස පද්ධතියක් තුළින් අභිචාර බිහි වූ බව ඔහු සඳහන් කරයි. (Frazer; 1955; pp 222-223) මේ අනුව අභිචාර ආගම සමග සංයුක්ත වී සමාජ ව්‍යුහය තුළ ක්‍රියාත්මක වන බව පෙනේ. මෙවැනි පසුබිමක් තුළ මෙම පර්යේෂණයේ පර්යේෂණ ගැටළුව වන්නේ වර්තමාන නාගරික සමාජය තුළ අභිචාර භාවිතයන්ගේ නැඹුරුව කෙබඳුද? යන්න පිළිබඳවයි. එයට අදාළව ගොඩනගාගෙන ඇති උපන්‍යාසය වන්නේ නාගරික සමාජය තුළ තවමත් යම් ප්‍රමාණයකින් අභිචාර භාවිතයන් ශේෂ වී ඇති බවයි. ගම්පහ දිස්ත්‍රික්කයේ තදාසන්න නාගරික ප්‍රදේශ කීපයක පවුල් 100 ක නියැදියක් භාවිත කරමින් සිදු කරන මෙම පර්යේෂණයේ පර්යේෂණ ක්‍රමවේදය වශයෙන් සිද්ධි අධ්‍යයන ක්‍රමය භාතා කිරීම සිදු විය. එහිදී දත්ත රැස් කිරීමේ ශිල්ප ක්‍රම වශයෙන් සම්මුඛ සාකච්ඡා ක්‍රමය සහ නිරීක්ෂණ ක්‍රමය යොදා ගැනීම සිදු විය. මානව විද්‍යාත්මක අධ්‍යයනයක් වශයෙන් සිදු කරන මෙම පර්යේෂණය මගින් නූතන නාගරික සමාජයේ ජීවත්වන ජනයාගේ අභිචාර භාවිතයන්ගේ නැඹුරුව සහ ඒ ආශ්‍රිත නව ප්‍රවණතා විග්‍රහ කිරීම අපේක්ෂා කෙරේ.

මුඛ්‍ය පද : අභිචාර , නව ප්‍රවණතා , සමාජ ව්‍යුහය , ප්‍රාථමික සමාජය , නාගරික සමාජය

¹ සමාජ විද්‍යා අධ්‍යයන අංශය, සමාජීය විද්‍යා පීඨය, කැලණිය විශ්වවිද්‍යාලය, ශ්‍රී ලංකාව.
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ශ්‍රී ලංකාවේ ඝන අපද්‍රව්‍ය මගින් කාබනික පොහොර නිෂ්පාදනය සඳහා සිදු කරන ආයෝජනය කෙරෙහි ලාභයේ බලපෑම

තිලිනි යූ මධුසංඛ ¹ මොහොට්ටාල ජී කුලරත්න ²

ඝන අපද්‍රව්‍ය කළමනාකරණය යටතේ කාබනික පොහොර නිෂ්පාදනය කිරීම වර්තමාන ලෝකයේ පුළුල් ලෙස අවධානයට යොමු වී ඇති කරුණකි. නමුත් ශ්‍රී ලංකාවද ඇතුළුව ලෝකයේ බොහෝ සංවර්ධනය වෙමින් පවතින රටවල ඝන අපද්‍රව්‍ය කළමනාකරණය යටතේ කාබනික පොහොර නිෂ්පාදන ක්ෂේත්‍රය තුළ මහා පරිමාණ මට්ටමින් ආයෝජනයන් සිදු කිරීම සම්බන්ධයෙන් පවතින යොමු වීම පහත් මට්ටමක පවතී. යම් නිෂ්පාදන ක්ෂේත්‍රයක් තුළ ආයෝජනයන් සිදු කිරීමේදී සලකා බලනු ලබන ප්‍රධාන සාධකයක් වන්නේ ලාභයයි. ඒ අනුව මෙම අධ්‍යයනයේදී මූලික අරමුණ වූයේ සංවර්ධනය වෙමින් පවතින රටක් වශයෙන් ශ්‍රී ලංකාවේ ඝන අපද්‍රව්‍ය කළමනාකරණය හරහා කාබනික පොහොර නිෂ්පාදනය සඳහා යොදවන ආයෝජන මට්ටම තීරණය වීම කෙරෙහි කාබනික පොහොර නිෂ්පාදන ක්‍රියාවලිය ආශ්‍රිත ලාභදායීත්වයේ ස්වභාවය බලපාන්නේද නැද්ද යන්න පිළිබඳව අධ්‍යයනය කිරීමයි. එහිදී ගම්පහ දිස්ත්‍රික්කයේ ගොවිජන සේවා බලප්‍රදේශ පහක් ආවරණය වන පරිදි හඳුනාගන්නා ලද කාබනික පොහොර නිෂ්පාදනය කරන නිෂ්පාදන ආයතන අතරින් සසම්භාවී ලෙස තෝරා ගනු ලැබූ 60% නියැදියක් ආශ්‍රයෙන් ලබාගත් තොරතුරු භාවිතයෙන් අධ්‍යයනය සිදුකර ඇත. පිරිවැය ප්‍රතිලාභ විශ්ලේෂණය ආශ්‍රයෙන් සිදුකරන ලද මෙම අධ්‍යයනයේදී හඳුනාගත් ප්‍රධාන කරුණක් වූයේ ශ්‍රී ලංකාවේ ඝන අපද්‍රව්‍ය කළමනාකරණය යටතේ කාබනික පොහොර නිෂ්පාදන ක්ෂේත්‍රයේ ආයෝජනය පහත් මට්ටමක පැවතීම කෙරෙහි ලාභය බලපෑමක් සිදු නොකරන බවයි.

මුඛ්‍ය පද | ඝන අපද්‍රව්‍ය කළමනාකරණය, කාබනික පොහොර, ආයෝජනය, ලාභය

¹ පර්යේෂණ මධ්‍යස්ථානය " සමාජීයවිද්‍යා පීඨය " කැලණිය විශ්වවිද්‍යාලය " ශ්‍රී ලංකාව. thiliniomadushankaa@gmail.com

² ආර්ථිකවිද්‍යා අධ්‍යයන අංශය " සමාජීයවිද්‍යා පීඨය " කැලණිය විශ්වවිද්‍යාලය " ශ්‍රී ලංකාව. kule_econ@kln.ac.lk

ශ්‍රී ලංකාවේ පැවති මුතු කර්මාන්තය.

(පෘතුගීසි, ලන්දේසි, ඉංග්‍රීසි යුග ඇසුරින්)

ඉෂාරා සුරංජී පෙරේරා¹

මුතු ; මුක්ත, මුතුහර ලෙසින් ද හඳුන්වන අතර මුතු නිර්මාණය ස්වාභාවික සිදුවන්නා වූ සංසිද්ධියකි. ඇත අතීතයේ සිටම ශ්‍රී ලංකාව මුතු නිසා ප්‍රසිද්ධියට පත්ව තිබූ බව මූලාශ්‍රය පිරික්සීමෙන් පෙනී යයි. පුරාතනයේ සිටම ලංකාව පෙරඅපර දෙදිග වැදගත් වෙළඳ මධ්‍යස්ථානයක් වූ නිසා ලංකාවෙන් අපනයනය කළ භාණ්ඩ අතර ප්‍රධාන ස්ථානයක් මුතු වලට හිමි විය. මුතු ලංකාවේ ප්‍රධානතම අපනයන මාධ්‍යයක් වූ බව දේශීය හා විදේශීය සාහිත්‍යය මූලාශ්‍රය පිරික්සීමෙන් පෙනී යයි. පෘතුගීසි, ලන්දේසි, ඉංග්‍රීසි ජාතින් මෙරට නතු කරගෙන සිටි සමයේ දී ද ඔවුන්ගේ ප්‍රධාන ධන උපායන මාර්ග වලින් එකක් වූයේ මුතුය. ඔවුන්ගේ ආගම සමග ද මෙකී කර්මාන්තය බැඳී පැවතිණ. ආගමික බැඳීම මුල් කරගනිමින් මෙකී යුගයන් හි දී මොවුහු මුතු කර්මාන්තයේ නියැලුණු ආකාරය පිළිබඳව මූලාශ්‍රමය සාධක ලැබේ. අතීතයේ ධන උපායන මාර්ගයක් වූ මේ මුතු කර්මාන්තය වර්තමානයේ ලංකාවේ එතරම් සාර්ථක ඇසුරින් සිදු නොවුවද ලෝකයේ සෙසු රටවල් වල කෘත්‍රීම ක්‍රම අනුගමනය කරමින් වඩාත් සාර්ථක ඇසුරින් සිදු කරන බව පෙනී යයි. ඒ අනුව බටහිර ජාතිකයන්ට ධන උපායන මාර්ගයක් වූ මේ මුතු කර්මාන්තය පිළිබඳව පරීක්ෂාවට ලක්කිරීම මෙම පර්යේෂණයේ මුඛ්‍ය අරමුණ වී ඇත.

පර්යේෂණ ක්‍රමවේදය වූයේ මූලාශ්‍රය අධ්‍යයනය කිරීම යි. ප්‍රාථමික හා ද්විතීයික මූලාශ්‍රය රාශියක් කෙරෙහි මෙහිදී අවධානය යොමු විය. පෘතුගීසි, ලන්දේසි, ඉංග්‍රීසි ජාතිකයන් ශ්‍රී ලංකාවේ අරිප්පු, කොණ්ඩවිච්චි, පොම්පරිප්පු වෙරළ තීරය ආශ්‍රිතව මුතු කර්මාන්තය පවත්වාගෙන ගිය බව පෙනී යන අතර ඔවුන් විශාල ධනස්කන්ධයක් මෙරටින් උපයා ගත්බවත් වර්තමානයේ මිහිතලය උණුසුම් වීම, සාගරයේ උණුසුම යන පාරිසරික සාධක හේතු කොටගෙන මෙන්ම මුතු ලබාගැනීමේ දී නොමේරූ මුතුපර කඩාගැනීමේ අදුරදර්ශී ක්‍රියාව හා ලංකාවේ මුතු බෙල්ලන් බෝවීම මර්දනය වීම නිසා ලංකාවෙන් සම්පූර්ණයෙන්ම මුතුපර නැති වී යාම සිදු වී ඇති බවත් මෙහිදී නිගමනය කළ හැකිය.

මුඛ්‍ය පද : මුතු, පෘතුගීසි, ලන්දේසි, ඉංග්‍රීසි

¹.ඉතිහාස අධ්‍යයන අංශය, සාමාජීය විද්‍යාපීඨය, කැලණිය විශ්වවිද්‍යාලය, ශ්‍රී ලංකාව. suranjiperera89@gmail.com

ගෝණගිරි රජමහා විහාරයේ පුස්තකාල පොත් එකතු පිළිබඳ ග්‍රන්ථ විද්‍යාත්මක අධ්‍යයනයක්
(අනුරාධපුර දිස්ත්‍රික්කය ඇසුරෙන්)

පූජ්‍ය ලැගුම්දෙනියේ පියරතන

මෙම අධ්‍යයනයේ ප්‍රධාන අරමුණ වන්නේ ශ්‍රී ලංකාවේ පුස්තකාල පොත් පිළිබඳ ග්‍රන්ථ විද්‍යාත්මක අධ්‍යයනයක යෙදීමයි. සමස්ත දිවයිනම අවාරණය කිරීමට නොහැකි නිසා පුස්තකාල පොත් බහුල වශයෙන් පවතින ප්‍රධාන රජමහා විහාර වල පුස්තකාල එකතු අධ්‍යයනයට යොදා ගන්නා ලදී. ඒ අනුව ගෝණගිරි රජ මහා විහාරය නියැදිය වශයෙන් තෝරා ගැනිණි. එම විහාරස්ථානය තෝරා ගැනීමට ප්‍රධාන හේතුව වන්නේ එම විහාරස්ථානය අනුරාධපුර යුගයට අයත් රජ මහා විහාරස්ථානයක් වන අතර මෙම විහාරස්ථානයේ අනුරාධපුර යුගයේ සිටි සුරතිස්ස රජතුමා විසින් මෙම විහාරය ගොඩනගා තිබේ. එම විහාරය සතු පුස්තකාල පොත් එකතුව ග්‍රන්ථ විද්‍යාත්මක තත්වයන් පිළිබඳ සාධාරණීයකරනය කළ හැකි යැයි අපේක්ෂා කෙරිණි.

මෙම අධ්‍යයනයට ලක් කල පුස්තකාල පොත් එකතුව තුළ විවිධ විෂයන් ආවරණය වුනු කෘතීන් ලෙස ත්‍රිපිටක කෘතීන්, ජෝතිෂය සම්බන්ධ කෘතීන්, වෛද්‍ය විද්‍යා කෘතීන්, යන්ත්‍ර මන්ත්‍ර ශාස්ත්‍ර පිළිවෙල කෘතීන් දැකිය හැකි විය. වැඩි වශයෙන් ත්‍රිපිටක යන කෘතීන් දැකිය හැකි විය. මෙම පොත් එකතුවේ කෘතීන් 57 ක් දැකිය හැකි විය. එම ග්‍රන්ථ 57 ම අධ්‍යයනයට ලක් විය. මෙම අධ්‍යයනයට ලක් කරවූ කෘතීන් වල විෂය ක්ෂේත්‍රය හඳුනා ගැනීමට අතිරේකව ඒවායේ ග්‍රන්ථ විද්‍යාත්මක ලක්ෂණයන් කෙරෙහි සුවිශේෂ අවධානයක් යොමු කිරීමට මෙම අධ්‍යයනයේ දී හැකිවිය.

මෙම අධ්‍යයනයේ දී පුස්තකාල පොත් පිළිබඳ වාර්තා ගත කිරීමේදී භාවිත කළ යුතු ග්‍රන්ථ විද්‍යාත්මක විස්තර, වර්ගීකෘත, අකාරාදී ආදී අනුක්‍රම වලින් පෙළ ගැස්වීමේ අවශ්‍යතාවයක් පවතී. ඒ අනුව මේ සඳහා ලේඛන රැගත් ග්‍රන්ථ නාමාවලියක් සම්පාදනය සිදුකොට ඇත. පෙළ ගැස්වීමේ විධි ක්‍රමය යන කරුණු කෙරෙහි විශේෂ අවධානයක් යොමු කර, එකී විහාරස්ථානය පිළිබඳ ග්‍රන්ථ නාමාවලියක් සම්පාදනය කරනු ලැබේ.

මුඛ්‍ය පද

1. පුස්තකාල පොත්
2. ලේඛන කලාව
3. ගෝණගිරි රජමහා විහාරය
4. ග්‍රන්ථ නාමාවලි
5. දේශීය ශෛෂ්‍ය

Author Index

A.G.Amarasinghe	14	Chathuranga, C D	278
Abdul-Manaf, N A	194	Chaturanganie, W H I	242
Abesinghe, C	268	Chandratilake, M N	129
Abeyewickreme, W	131	D L Jayaratne	232
Abeyewickreme, W	134	Das, B	99
Abeyewickreme, W	137	Dasanayaka D M Y T	135
Abeyewickreme, W	140	Dasanayaka, D M N K	152
Abeyewickreme, W	143	Dasanayake, D D	308
Abeyewickreme, W	146	Daskon-Attanayake, L	81
Abeygunawardena, R A B	162	Dassanayake, R S	137
Abeysekera, L	22	De Saram, P G	38
Abeyundara, H G A	108	De Silva	167
Abeywardhana, D K Y	17, 26	De Silva, A P U	251
Abeywickrama, K	186	De Silva, D D R	139
Alahakoon, P P	78	De Silva, D S M	190, 194, 212, 225
Amarakoon, A	125	De Silva, D W L U	282
Amarakoon, A M T	170	De Silva, H I C	171
Amarakoon, T N	183, 269	De Silva, H J	136, 145
Amaranayaka, K K K H	179	De Silva, L I N	193
Amarasekara, A A T M	154	De Silva, L N K	230
Amarasinghe, A G	266	De Silva, M	136
Amarasinghe, P	275	De Silva, P P N	261
Amarasinghe, U S	202, 224	De Silva, R C L	216, 228
Amarasiri, D L	136	De Silva, T K N P	259
Amarathunga, P A B H	227	Deepananda, K H M A	202
Amaratunga, C	136	Deeyamulla, M P	173, 179, 216, 226
Ankanamge, B K	59	Deshappriya, N	232
Antony, K N L	203	Devanarayana, N M	136
Arunashantha, H A S	257	Deveniguru, D K L C	60
Ashika, B A D W	286	Dharmadasa, I M	194
Asoka de Zoysa	93	Dharmadasa, R M	192
Atapattu, H Y R	212	Dharmasiri, L M	309
Aththanayaka, A M L	192	Dharmawardana, M	156
Attanayaka, M	297	Dharshini, S	219
Attapattu, D	275	Dias, N G J	153, 167, 178, 195
Balashangar, K	194	Dickenson, J M	133
Bandara RMS	31	Diggle, P J	145
Bandara, K B A T	207	Dileep, A H	198
Bandara, K M K S M	61	Dilhani, S A	235
Bandaranayaka, L	46	Dilinika, J M S	296, 325
Bimali, J	199	Dinesha, P K C	34
Bodhinayaka, D	254	Dinushika, D S B	118
Buck, P S	46	Dissanayaka, D M M T	221
Chakrewarthy, S	211	Dissanayaka, G R	88
Chamara, K A T	254	Dissanayake, D A	207
Chandrasekara, N V	206	Dissanayake, D M A B	138
Chandrasekara, P V S	101	Dissanayake, D M S E	160
Chandrasekara, S	284	Dissanayake, D M S L B	328
Chandrasekara, W U	224	Dissanayake, D S B	207
Chandrasena, T G A N	137	Dissanayake, D S.B	161
Chandrika, A M M	330	Dissanayake, P	55

Dissanayake, R	23, 37	Hilmi, A J	177
Dissanayake, S M N	109	Idris, S	270
Doole, F T	217	Iqbal, M C M	140
Ediriweera, E P D S	145	Iqbal, N Z	144
Ekanayake, E M V R S	119	Isthikar, M A M	234
Embuldeniya, P	293	Jansz, M I	91
Eranga, D M S	174, 262	Jayakody, J A N A	240
Fernando, H N	288	Jayakody, J A N K	230
Fernando, K D N	244	Jayalath, K G	216, 217
Fernando, M I	159	Jayamaha, J H R K	196
Galhena, B P	211	Jayamal de Silva, W T C	87, 102
Gamage, D	297	Jayamanne, S F	145
Gamage, P H	171	Jayarathna, N	238
Gamage, R	251	Jayarathna, R N H M S	253
Gamage, S U	73	Jayarathna, S P N C	220
Ganehiarachchi, G A S M	176	Jayarathne, E G M	315
Gilles, J R L	143	Jayasekara, A.H.D	264
Gruruge, G N D	135	Jayasekara, D	297
Gunapala, E A D A	324	Jayasekara, P K	252
Gunarathne, N M A D W C	110	Jayasekara, S	62
Gunaratna, L N R	232	Jayasekera, L R	220
Gunasekara, D S	204	Jayasena, N	67
Gunasekara, I	293	Jayashantha, D L C	300
Gunasekara, K A D C	179	Jayasinghe, C	268
Gunasekara, M A N P	33	Jayasinghe, J U K	218
Gunasekara, J T S	260	Jayasinghe, K P P B	58
Gunathilaka, P A D H N	134	Jayasinghe, M	268
Gunathilaka, P A D H N	137	Jayasinghe, R R	64
Gunathilaka, P A D H N	140	Jayasinghe-Mudalige, U K	202
Gunathilaka, P A D H N	146	Jayasooriya, A P	177
Gunatilake, S R	171	Jayasooriya, G A J S K	146
Gunawardana, M B D S S	210	Jayasundara, M B B	120
Gunawardana, N K	145	Jayasuriya, K M G G	187
Gunawardana, C	96	Jayasuriya, U	98
Gunawardana, S A B N	213	Jayathilaka, A	273
Gunawardene, Y I N S	137	Jayathilaka, N	180, 215
Gunawardhana, L M A P	309	Jayathilake, M V M	214
Handagiripathira, H M N L	226	Jayathileka, K M D C	209
Hapugoda, M D	131, 134, 143, 146	Jayawardana, A A	303
Harishchandra, J	143	Jayawardana, M C N	325
Heiyanthuduwege, D S D	135	Jayawardane, T	39
Heiyantuduwa, M	28	Jayawardana, B	186
Hemachandra, C K	168	Jayawardana, B M	166, 229
Herath, D B	289, 297	Jayawardana, L N A C	29
Herath, H M N A	189	Jayawardhane, K B	113
Herath, U	238	Jayaweera, M P	167
Hettiarachchi, A A	259	Jinadasa, M	314
Hettiarachchi, C	157	Joe Inparaj, C T	68
Hettiarachchi, D C	185	John, B G	40
Hettiarachchi, H A T	243	John, J	32
Hettiarachchi, M	185	Joseph, F N	272
Hettiarachchi, S	81, 320	Kafi, F S B	209
Hewa, S P	114	Kanchana, D G	250
Hewageegana, P S	230	Kandambige, T	258
Hidaya Hudawi, M S	86	Kandiah, R	204

Kannangara, D N	134	Madhurani, A	236
Kannangara, S	186	Madhusanka, H A G	70
Kanungo, C	323	Madushanka, K B G	136
Kariyawasam, K B G W S	105	Malhotra, N	24
Karunananda, A S	153	Malhotra, P	24
Karunanayake, A L	139	Mallawa Arachchi, D K	196
Karunanayake, R M D I N	135	Mammadov, M A	206
Karunaratne, E D C	163	Manewa, R M E S	311
Karunaratne, D G G P	171	Mani, A	308
Karunaratne, P	25	Manthirathna, M A T P	204
Karunaratne, P V M	298	Manuha, M I	144
Karunaratne, W C D	129	Marasinghe, S S K	148
Karunathilake, D G K J K	207	Meegaswatta, T N K	117
Kasturiratne, A	145	Meenakshi, R	199
Khute, U K	310	Mohammed Abdul1, K S	133
KIM JIN-R	49	Mohammed, D	41
Kithsiri, P M	303	Mohapatra, P	329
Kithulgoda, E	100	Mohotti, K M	164
Kolonne, T S	30	Munasinghe, D A L	163, 188
Kottawa-Arachchi, J D	170	Muneer, K M	86
Kuganesan, A	169	Muneera, W A F	242
Kularathna, S B A K	122	Muthulingam, A	255, 291
Kularathne, S A	112	Nadeesha, H M L	69
Kularatna, S A M	141	Nadeeshani, D L W R	180
Kularatne, S A M	161, 177, 207	Nageeb, B M	144
Kulasekara, N	51	Nanayakkara, R P	176
Kumar, S M S P	29	Nanayakkara, S	142, 268
Kumara, C R	94	Navaratne, A N	169
Kumara, K R P S	185	Neelima, B N	76
Kumarasinghe, G U	95	Nettikumara, N A L A	239
Kumarasinghe, K D M S P K	194	Nimeshika, G A T	245
Kumari, D M R A	158	Niwarthana, H P G	142, 268
Kumarika, B M T	178	Oshani, P A L	271
Kumburegama, S	130	Padmakumara, S C	305
Kumo, A A	267	Palapathwala, P	157
Kusumawathie, P H D	140	Pallewaththa, P W P W K	142, 268
Kusumawathie, P H D	146	Panditharatne, W N G	295
Kusuminda, T G T	176	Paranagama, P A 144, 164, 165, 169, 192, 203, 204, 208	
Lakmali, A W I	317	Pasqual, M K D	292
Lakmali, W A K U A	248	Patel, H	138
Lakmini, P N	135	Pathiratne, A	168, 231
Lakshani, W G J	124	Pathiratne, K A S	189, 190, 194, 212
Lakshminarayan, B	72	Pathiratne, S	182, 227
Lasika, S R	115	Pathmeswaran, A	145
Lionel Mandy	106	Peiris, A E	78
Liyanage, D	111, 319	Perera, B C B	201
Liyanage, J A	188	Perera, C	139
Liyanage, P P	320	Perera, G A D	139
Liyanage, S K	149	Perera, H A S D	133
Liyanage, S R	191, 221, 223	Perera, M	112
Liyandeniya, A B	158, 173	Perera, S S N	160
Madanayaka, S A K	283	Perera, T	181
Madawala, H M S P	187	Peter, S	20, 25, 28, 35, 36
Madhubhashinie, A	103	Pieris, I R N S	66
Madhujith, T	177		

Piratheepkumar, R	150	Samankula, W G D M	195
Pisagih, D	276	Samanthi, K A U	165, 208
Piumi, L	27	Samanthi1, K A U	203
Prasadani, W C	229	Samaranayake, H A E	211
Prasadi, K M D C	247	Samarasekara, A M P B	184
Prasanna, E G J	225	Samarasinghe, S T H P	45
Prasanthi, H M I	50, 79	Samaraweera, S G S	77
Premachandra, T N	177	Sampath, H W B I	47
Premarathne, B A H R	129	Sandamali, G K A H T	228
Premarathne, P	55	Sandaruwan, K P G L	282
Premaratna C.D.H.M	71	Sanjei, C	193
Premaratne, R G	143	Sanmuganathan, K	84
Premaratne, W A P J	183, 197, 269	Sarathchandra, K A D M S	190
Priyadarshanie, S M A	57	Sari, N	91
Priyangika, S N	75	Senanayake, C M	166
Priyantha, N	158, 173	Senanayake, P D	164
Rajapakse, R P V J	161, 177, 207	Senanayake, S M A I	132, 147
Rajapaksha, P L N R	294	Senanayake, S P	220
Rajapaksha, R M J K	50, 79	Senevirathna, R A P S	249
Rajapaksha, U D	65	Seneviratne, G	187
Rajappakse, R W D N K	63	Seneviratne, K N	166, 180, 215, 229
Rajarathne, I R D	205	Sewwandi, H K I	313
Rajathewa, R M.A.S.N	170	Shantha, P H A B	214
Rakshit, S	302	Sharmila, K L H	130
Ramachandran, R	133	Silva, K S R	53
Ramanayake, R A K D	307	Silva, S U T	85
Ranasinghe, A N	191	Singh Bithoo, V	256
Ranasinghe, H P P	170	Singh, A	306
Ranasinghe, K N K	177	Siripala, W	209
Ranasinghe, M S N	222	Siriwardana, H L S	186
Ranasinghe, P	249	Siriwardena, S	104
Ranathunga, G M	82	Sivakanesan, R	148, 150
Ranathunga, M A B	170	Sivapathasuntharam, A	107
Ranathunga, P E A N	141	Sivatheepan, B	35
Ranathunga, R M T B	134	Siyana, A	263
Ranathunga, S	265	Somasuntharam, P	184
Ranaweera M	81	Srinath, G	157
Ranaweera, R A D	315	Steven C Bonta	89
Rathnadiwakara, A S K	223	Subramanium, S S	217
Rathnasiri, R M	54	Sudesh, A D H	163
Rathnasiri, U A H A	42	Sudharmawathie JM	321
Rathnayaka, R M M K N	141	Sumana, B	326
Rathnayake, M V R M S	285	Sumathipala, H H	218
Rathnayake, R M S S	287	Suriaarachchi, D J C	213
Rathnayka, R M C L K	30	Tennakoon, W	92, 97
Ratnatileke, A A L	210	Thakshila, L M	62
Ravirajan, P	194	Thalpawila, O N	301
Rodrigo, C	22	Thambawita, N	246
Rogers, K	226	Thammitiyagodage, M G	211
Rupasinghe, G D H	172	Thilakarathna, R H	36
Rupasinghe, W	297	Thilakarathne, L I A S	316
Ruvinda, K M S	231	Thilakarathne, R N D	43
Sahajeewa, W M D S	318	Thilakarathne, V	316
Salim, H I	194	Thilakarathne, M	246
Sam Hammer	175	Thinesh, M	135

Thiripurathar, G	169	Weerathne, U A G W	162
Thisara, E B	155	Weerasekara, W M N S	172
THUSYANTHI, R	21	Weerasingha, I	304
Tilakaratne, C D	206	Weerasinghe, K G G	242
Tissera, D	278	Weerasinghe, K G H D	152, 154, 174
Tissera, W S L	197	Weerasooriya, M K B	188
Ubeynarayana, N J	228	Weerawardhana, V	48
Udayanga, N W B A L	140	Weliwegamage, U S K	171
Udeshinee, W A	78	Wickramaarachchi, S	165, 208
Umadaran, S	184	Wickramasingha, E A D N N	225
Vani, C	74	Wickramasinghe, A I N K	26
Ven Rewatha, U	116	Wickramasinghe, W G R C	173
Ven. BaladoraIndajoti	90	Wickremasinghe, A R	211
Ven. Galkande Dhammananda	327	Wijayanayake, A	156, 181, 200
Ven. Koonkandawala Wimaladhamma	237	Wijayanayake, W M J I	159, 198, 201
Ven. Suriyawewa Wijayawimala	52	Wijyaratna, U N	215
Ven.Dapane Chandaratana	121	Wijegunasekara, M C	155
Ven.Pahiyangala sumangala	299	Wijegunawardana, N D A D	137
Ven.Rewatha, U	113	Wijepala, P	187
Vikram, R	133	Wijerathne, E M K	165, 208
Vinobaba, P	219	Wijesekara, G J S	114
Vishvanath, N	176	Wijesinghe, P S	138
Vithanage, D	263	Wijesundera, R P	209
Vithanage, J K	19	Wijethilake, P K P N	18
Waduge, V A	226	Willarachchi, D D L	83
Wakkumbura, H P	188	Wimalasena, S	225
Walisundara, D	81	Wimalasiri, B G S P	241
Wanninayake, W M C B	18	Withanage, G P W K	131
Wannisingha, W M N N	200	Yadav, M	312
Wasantha, H P C	274	YapaArachchi, Y A G S	80
Wasantha, N	23, 37	Yatigammana, S K	219
Weerakon Banda, Y K	30	YOGENDRARAJAH, R	21
Weerakoon, S N	224	Zacharias, S	32
Weerakoon, W A C	153	Zacherias, S	40
Weerakoon, W M U I	56		
අමරතුංග ජී	281		
ඉඳුනිල් ජය	279		
පූජ්‍ය ලැගුම්දෙණියේ පියරතන	334		
පූජ්‍ය කරපික්කඩ සෝභිත	126		
පෙරේරා, අයි එස්	333		
මධුසංඛ, ටී යූ	332		
රාජපක්ෂ ඉන්දිකා	331		
රත්නමාලා, එච් ඒ ඩී	127		
ලක්ෂිකා දිලිනි	280		
ලංසකාර, එල් එම් ආර් එන්	123		
චිත්‍රමආරච්චි වරුණී	290		