



18th Conference on Postgraduate Research
International Postgraduate Research Conference
2017

**“Research for Sustainable Development, Applications Beyond
Publications”**

Abstracts

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Faculty of Graduate Studies
University of Kelaniya, Sri Lanka

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18th Conference on Postgraduate Research

“RESEARCH FOR SUSTAINABLE DEVELOPMENT, APPLICATIONS BEYOND PUBLICATION”

Abstracts

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MESSAGE FROM THE VICE-CHANCELLOR



It is with great pleasure that I welcome you to the International Postgraduate Research Conference 2017 organized by the Faculty of Graduate Studies, University of Kelaniya.

It is a great honor for us to host IPRC 2017, which is a forum for researchers and scholars to share knowledge, information, exchange experiences, to present innovative concepts and research related to all areas of Commerce and Management, Science, Medical Science, Humanities, Social Science and Computing and Technology for sustainable development, and to promote the quality of life.

In addition, the conference will also lead to future research collaborations and strengthening of common network with over 300 participants both from local and overseas. The presentations and deliberations will bring up great opportunity to gain insightful knowledge about the projects being conducted in the region. Through the interaction, we expect to stimulate an active research environment that is relevant to our communities.

I would like to thank and congratulate the Dean of the Faculty of Graduate Studies, the organizing committee, and the supporting staff for organizing this event. I would also like to thank the researchers, reviewers, editors and other academics that contributed to sustaining the core values of quality and innovation throughout this conference. I wish the conference and the presenters all the very best.

Prof. D.M. Semasinghe,
Vice-Chancellor,
University of Kelaniya,
Sri Lanka.

MESSAGE FROM THE CHAIRMAN, RESEARCH COUNCIL



It is with great pleasure that I issue this message on the occasion of the International Postgraduate Research Conference 2017 (IPRC – 2017) organized by the Faculty of Faculty of Graduate Studies, University of Kelaniya.

IPRC is the principal research conference of the University of Kelaniya participated by all the Faculties and it provides a platform for its academic staff to highlight their research contribution towards the advancement in diverse fields of Humanities, Social Sciences, Science, Commerce & Managements, Medicine and Computing & Technology towards the advancement of Pure and Applied Sciences.

Research and innovation is the mainstay for economic development of a nation and mission of the University Research Council is to promote research excellence among its academic staff to make a significant contribution to the knowledge enhancement and national development.

I am very pleased to note that our University community at present is highly motivated and involved in high quality scientific research with the objective of achieving the national development goals of Sri Lanka.

The University Research Council has established a research culture within the University community by providing financial support to conduct research symposia at the Departmental and Faculty levels and University level in addition to rewarding researchers individually.

The research carried out by the academic staff members of the University in diverse academic and scientific disciplines have regularly published their research findings in reputed international journals and therefore the Research Council has taken steps recommend them for senate honours and cash prizes to be awarded by the Vice Chancellor.

I wish to congratulate Dean of the Faculty of Graduate studies and the organizing committee for their untiring efforts in organizing IPRC 2017 as a University level symposium in a highly successful manner. I hope that this conference will provide a stage to presenters and participants representing scientists, professionals and academia to present their research under the theme “Research for sustainable development, applications beyond publications” and also to find opportunities to interact, exchange ideas and to develop research collaborations locally and internationally. I wish this conference all the success.

Senior Prof. N.P. Sunil-Chandra,
Chairman of the Research Council,
University of Kelaniya,
Sri Lanka.

MESSAGE FROM THE DEAN, FACULTY OF GRADUATE STUDIES



It is with much pleasure that I write this message for the 18th International Postgraduate Research Conference, 2017 organized by the Faculty of Graduate Studies. This annual conference organized by the Faculty of Graduate Studies remains a favorite venue for local and international scholars to exchange their research and ideas.

This year's conference theme focuses on "Sustainable development should meet the needs of the present generation without compromising the ability of future generations to meet their own needs". Currently, it has become a widely recognized goal for human society in many parts of the world. Hence, Sustainable development requires meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life, maintaining the economic and ecological balance. Given this renewed interest in sustainable development, this year's International Postgraduate Research Conference focuses on "Research for sustainable development, applications beyond publications".

We received papers that explore the way disciplinary specificity and differences can enable (rather than impede) interdisciplinary and multidisciplinary research. We believe that multidisciplinary and collaborative researches should be key focuses on future development and sustainability of researches themselves.

IPRC- 2017, now in its 18th year, remains a pioneering conference that has established a strong tradition of research at the University of Kelaniya. Its cross-disciplinary focus draws scholars from across over seven disciplines from around the world to this conference annually. This year, too the conference was organized using an online conference management platform that facilitated a smooth organizing process and better data management in registration and reviewing.

I trust that our participants will benefit much from these innovative interventions and I hope that this conference will stimulate future collaborative interventions in the field of interdisciplinary research in Sri Lanka.

Prof. Ariyaratna Jayamaha,

Dean,

Faculty of Graduate Studies,

University of Kelaniya,

Sri Lanka.

EDITOR'S NOTE



International Postgraduate Research Conference (IPRC) 2017 organized by the Faculty of Graduate Studies, University of Kelaniya, Sri Lanka revolves around the theme of “Research for sustainable development, applications beyond publication”. This theme is consistent with the research culture inculcated within the University of Kelaniya to promote new knowledge and its application towards betterment of world of work and society as a whole.

IPRC is a unique conference, because instead of limiting itself to a single subject discipline or traditional branch of knowledge it covers all disciplines in the higher education domain. For many years, the advancement of knowledge in Asian civilization has taken a path of increasing specialization. We have approached understanding our world by deconstructing it into smaller and smaller fragments creating the disciplines and sub-disciplines in order to be able to predict, or at least to explain, behaviour in nature, individuals, and society. In today's knowledge landscape there are powerful drivers for multidisciplinary research. Interdisciplinary research moves beyond simple collaboration and teaming to integrate data, methodologies, perspectives, and concepts from multiple disciplines in order to advance fundamental understanding or to solve real world problems. Interdisciplinary research requires either that an individual researcher gains a depth of understanding two or more than one discipline and be fluent in their languages and methodologies, or more frequently that multidisciplinary teams assemble and create a common language and framework for discovery and innovation.

I appreciate the enormous efforts put forth by authors to compile research abstracts to IPRC 2017. In addition to that I value the contribution of eminent review panel of reviewing research abstracts. Further, it is worth to admire involvement of faculty coordinators in this endeavor.

I wish all the success for IPRC 2017.

Prof. P. M. C. Thilakeratne,
Director, Center for Distance & Continuing Education,
Department of Accountancy,
University of Kelaniya,
Sri Lanka.

KEYNOTE SPEAKER - PROFILE

Professor Ray McNamara
James Cook University, Australia



Prof. McNamara gained his bachelor's degree from the Queensland University of Technology, a Master of Business Administration from the University of Queensland. He Obtained his Doctorate in 1990 from the University of Queensland. He is the Associate Dean for Research Education in the College of Business, Law and Governance at James Cook University and a Professor in Accounting.

Prof. Ray McNamara's research interests are in equity and resource valuation, corporate governance and auditing. Current research projects include a multidisciplinary team addressing agricultural innovations and climate research. He is an academic with extensive experience in accounting, audit and finance in the private and public sectors.

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Commerce & Management Studies

The Relationship between Transfer of Training and Three Predictors: Training Design, Trainee Characteristics and Work Environment in Trincomalee District in Sri Lanka

R.Anuja¹, G.T. Madagamage²

In recent years' organizations invested huge amounts of money on training and development to achieve employees' full potential and face future challenges effectively. To enhance employees' job performance or success, the literature recommends that transfer of training plays an important role in the success of employees in the work environment. Thus, the purpose of this study is to investigate the relationship between transfer of training and the three types of predictors namely, training design factors (transfer design and content validity), trainee characteristics (self - efficacy and training retention) and work environment factors (supervisor support and peer support) of Commercial bank employees in Trincomalee District. With a thorough review of the literature, conceptual model was developed. The study developed validated research instruments. The model was empirically tested by collecting data from Commercial bank employees' in Trincomalee District. A total of 150 Commercial bank employees were selected for the study using the stratified random sampling technique and 137 usable questionnaires were returned. To validate the items, internal consistency reliability, content validity and convergent validity was tested. Hypotheses were developed and to test hypotheses, Pearson correlation coefficient analysis was used. The findings revealed that training design factors such as transfer design and content validity have a moderate and significant positive relationship on transfer of training. Likewise, trainee characteristics, self-efficacy have a moderate significant positive relationship, however the training retention have a strong relationship on transfer of training. The work environment factors that supervisor support and peer support have a very strong positive relationship on transfer of training. Further, this study provided implications of the results and future direction for further research.

Keywords: Transfer of Training, Training Design, Trainee Characteristics, Work Environment

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Study of Decision-Making Skills of Government and Private School Principals in Gampaha District, Sri Lanka

S. Pathirathna¹, P.A.B.H. Amarathunga²

Decision making is selecting the appropriate option from different options. For any human being, decision making is very necessary as this is the main criteria for judging the mental ability of anyone. The principal is the backbone of any school administration. Most of the decisions are given by principal for the development of the school. In the given study, investigators compare the decision-making skills of government and private schools as well as male and female school principals. Objectives of the study are to compare the decision-making skills of government and private school principals in Gampaha district on the basis of gender and to compare the decision-making skills of government and private secondary school principals. The sample of the study consisted of 80 participants. The sample consists of 40 government and 40 private school principals. The sample was taken using purposive sampling. For the assessment of decision-making in school principals Decision-Making Style Scale was validated and used. Statistical techniques like Mean, Standard Deviation and t-test was used. Results denote that gender has not affected the decision-making skills of government and private school principals. Also, it is evident that significant difference exists between decisions making skills (i.e. routine, compromise, heuristic) of government school principals and private school principals. All the mean score for the government school principals are higher than the mean score of private school principals. This study despite that government school principal's decision making is more accurate than private school principals. On the other hand, there is no significant difference between decision-making skills on the basis of gender. The reason behind the first result may be Government school's principals are more independent than private school principals because government principles have to implement the policy. Private school principals have to follow the instruction from the management.

Keywords: Decision-Making, Government school Principals, Private school principals

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Entrepreneurship Awareness amongst the University Academics in Kurunegala District, Sri Lanka

P.A.B.H. Amarathunga¹, S. Pathirathna²

An Entrepreneur is a person who takes the jeopardy of starting his own business or enterprise or investing in other startups for the purport of achieving their goal with the desire and the capability to innovate and diversify. It is verbalized that entrepreneurship is the main reason for the economic development a country. The objective of this study was to quantify the knowledge and awareness about the entrepreneurship amongst the University Academics in Kurunegala District, Sri Lanka, predicated on the concept of engendering vigilance about it. The survey method was used in this research to gather the data from the Academics. The questionnaire comprised of five segments as each section focuses on the proportions of the entrepreneurship awareness. These questions are based on the knowledge and the awareness and also the abilities of the entrepreneurship. Sample sizes of 100 academics were investigated. The respondent population consisted of 60 males and 40 females. The results denoted that 90% of the male academics and 85% female academics are well aware of Entrepreneurship. There was no significant relationship between gender Entrepreneurship Awareness and Most of the academics are stated that they came to know about this entrepreneurship from the conferences conducted by educational institutions. Seventy-seven academics revealed that they knew a lot about the benefits of the entrepreneurship. Fifty-two are very interested to start the new business, whereas 36 academics who are well educated about the entrepreneurship are not interested in beginning new firm. Males are well aware of the entrepreneurship benefits and they are ready to take the risks compared to the women in Kurunegala District. This research has given the opportunity to ken about the vigilance and cognizance about the entrepreneurship. Entrepreneurial erudition is must for the academics so that they can inspirit the entrepreneurship among the students and it may enable to edify them or victual them with cognizance about entrepreneurship.

Keywords: Academics, Awareness, Education, Entrepreneurship, Kurunegala

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Duties of Directors in Relation to Corporate Governance in Sri Lanka: Its Adequacies and Weaknesses

K.A.A.N Thilakarathna¹

The concept of corporate governance can be defined simply as how companies should be managed. The Companies Act No 07 of 2007 made significant changes to the then existing company law legislation and departed from the roots of the English Law that was the basis of our company law up to then. With the introduction of new Companies Act, the legislators were able to encapsulate the conceptual framework to have in place a better mechanism for having a good system of corporate governance. This helped to better facilitate the growth of corporate governance. With regard to corporate governance, the board of directors plays a vital role. They are responsible for the management of the company. They are entrusted with the capital of the shareholders. As there is a division between the ownership of the assets and its management the concept of corporate governance helps to balance out the conflicting interest that the parties may have. The Act has recognized many duties and obligations, which were not recognized under earlier laws and specially those relating to solvency and serious loss of capital. To further emphasize the matter listed rules that applies for a listed company in the stock exchange, corporate governance is made mandatory on an apply or explain basis. However, there are still shortcoming in the system as well. Since a company has got the opportunity to give an explanation as to why it has been unable carry out any aspect of corporate governance the adequacy of such explanations may be problematic as there is no guideline to measure the suitability of the explanation. Further, since the compliance is restricted to clicking the box the actual value of the corporate governance is not directly show in account and figures of a company and since it has been found that the share price and the corporate governance does not have much relationship with one another, the value of corporate governance is not emphasized to the potential investors. This articles examines how the newly imposed duties and obligations of the directors in the Companies Act of 2007 helps in establishing a better system of corporate governance and the adequacies and the inadequacies of the system.

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A Study on Factors Affecting Purchase Intention of Urban Consumers towards Motorcycles with Special Reference to Dehiwala West Grama

Niladhari (GN) Division

S. D. Ilangasekara^{1*}, R. M. K. G. U. Rathnayaka²

Purchase Intention (PI) is simply a strategy to purchase a particular good or service in the near future. Manufactures strive to manufacture and position their products in a highly competitive market due to the purchasing intention of consumers. Motorcycle market in Sri Lanka is one of the most competitive marketplaces in South Asian neighborhood. This will provide guidelines for motorcycle manufacturers to meet the customer needs, wants and expectations while being the first local empirical evidence on urban consumers' purchase intention of motorcycles. PI of consumers depend on various factors. This study aims to explore the factors affecting the PI of urban consumers towards motorcycles. Out of the 384 subjects: urban and rural, 168 urban consumers were considered to acquire the required data through a structured questionnaire and the sampling methods were simple random sampling and multistage cluster sampling. Since, the Indian brands have recorded the highest motorcycle population in Sri Lanka, four Indian motorcycle brands: Bajaj, Hero, TVS and Honda were used. Meanwhile, Dehiwala West GN division which has a rapid industrialization and urbanization was selected out of the municipal councils of Colombo district from the Western province with the highest motorcycle population. The exploratory factor analysis reduced the total system into 10 latent factors which affect urban consumers' PI of motorcycles: comparability, knowledge, awareness, need fulfillment and availability, quality customer service, attractiveness, quality component, trusted performance, fair price, and variability. Furthermore, the results confirmed that each of the individual latent factors were significantly positive correlated ($p < 0.5$) with PI. Finally, the results of the multiple linear regression analysis revealed three factors: trusted performance, knowledge and awareness significantly impact on PI of motorcycle consumers in urban area. Meanwhile, the study proved that the components and customer service in the motorcycle industry should be at their highest quality while the manufacturers concern on high fuel efficiency for urban consumers to get benefits over the huge traffic congestion. The study can be expanded to capture PI of various brands from the second and third highest manufacturing countries in Sri Lanka: China and Japan.

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A Meta-Analysis of Green Procurement Practices in the FMCG Industry

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Green procurement has increasingly been recognized as an effective means of purchasing products and services that cause minimal adverse environmental impacts related to product manufacturing and consumption around the world. The current business environment has shifted from the traditional supply chain into the Green Supply Chain initiative especially, with the procurement activities. The approach of this study is the systematic literature of review. As the objective of this study is to investigate the applicability of internationally accepted principles and practices related to the green procurement aspect in the FMCG industry, the relevant knowledge was extracted from the research papers which have been proven as valid, accepted and published. Initially 33 articles were collected through a web search, which were searched based on the key words related to three categories namely Green Procurement category, FMCG category and the FMCG related Green Procurement category. Then the topic and the abstract of each article were analysed in order to decide the relevance of the article for the study. Next, the full text of selected 24 papers were reviewed which resulted in selecting six articles from GP category, five articles from FMCG category and five articles from the combined category to be considered in final analysis. A comprehensive literature review was conducted with the objective of identifying and classifying the important factors which affect the process of implementing the Green Procurement concept in the FMCG industry in developing countries. The results of the study provide a conceptual framework and insights on issues and challenges in implementing GP in FMCG industry, measures for promoting GP in FMCG industry and the factors regarding the consumer perception and behavior towards eco-friendly FMCG products of the applicability of green procurement practices in the FMCG industry to the current business environment.

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**Are you a thrill seeker or a safe zone seeker?
Impact of demographic factors on risk behavior of undergraduates
in Sri Lanka**

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There is considerable interest in factors that influence individuals' decision-making behavior, in risky contexts. These differences in behaviour have important implications for economic outcomes including occupational choice, investment and consumption choices and insurance coverage. A number of studies have documented the effect of demographic variables such as gender, age, height, education level, income level, marital status and family background on risk behaviour. However, many of these studies have been conducted on human risk behavior, based on the European or Western context while the studies in the Asian context is limited. Therefore, this study attempts to evaluate the risk behaviour of young adults in Sri Lanka and to establish the relationship if any, between individual characteristics, external stimuli and risk behaviour. The research question addressed is, “What factors determine risk behaviour of young adults in Sri Lanka?”. A modified version of the Sitkin and Pablo model (1992) was used as a conceptual model to assess risk behavior which was adapted to focus on individual risk characteristics. A cross sectional study was carried out among young adults in five state universities in Sri Lanka using snow-ball sampling method to assess their risk behavior. This sample represents approximately 52.63% amount of the total number of students enrolling Sri Lankan state universities annually. Risk behavior was assessed by their likelihood of engaging in risk related activities associated with their daily life through a scenario based questionnaire. The findings suggest that among the demographic factors, only gender, education stream and the number of dependents were found to be significant. Furthermore, according to the normality test, the distribution of the risk behaviour tends to be right-skewed, suggesting that the overall risk behaviour of an average young adult in Sri Lanka is comparably low. Results also revealed a significant difference in risk behaviour between males and females. Males tended to exhibit high-risk behaviour compared to females. This result was robust even when the education background of the sample was evaluated, with the male dominated stream of engineering, showing the highest risk-taking behavior when compared to the arts, management and sciences. As expected, we found evidence to indicate an inverse relationship between number of dependents and risk behavior. The results could be used in functional areas such as marketing, finance and human resource management in the corporate sector, across multi industries to design and develop new products, understand customer behaviour and financial investment patterns.

Keywords: Behavioural model, Demographic factors, Risk behaviour, Young adults

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How Corporate Social Responsibility (CSR) Concept is Practiced by Sri Lankan Universities? Comparison Study between 2008 and 2017

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Researcher has identified in 2008 corporate social responsibility (CSR) activities in universities in Sri Lanka. Accordingly, he concludes that lecturers, students and non-academics in universities do CSR activities to some extent. At that time CSR concept was a newly introduced concept and few research studies were done relating to Asia, Africa and Latin America. Specifically, Sri Lankan CSR studies were very few; not the government organisations many private companies and public limited companies about 50% implemented the CSR activities as a voluntary activity. However, still this concept has engendered considerable interest in Sri Lanka and other countries in recent years. However, many research articles have been performed in the education sector.

Aim of this study was when comparing the period of 2008, how far the concept being accepted by the universities in Sri Lanka. If they were accepted those, what limitations could be identified for the sustainability purposes. Also, if not what are the reasons for not applying this valuable concept. Using criteria based on international and national research this paper explores the understanding in CSR in Sri Lankan universities and highlights the CSR activities currently undertaken. Initial findings support the view that CSR in developing countries primarily focus on economic and philanthropic dimensions. The study gathered information from 8 national universities out of 15. Students and lecturers engaging in the CSR activities are considered for the study. As the sample of the study that was taken 50 university lecturers. Out of 50, twenty-five lecturers selected from the senior treasurers of the student's associations, and other twenty-five lecturers from various academic departments who have engaged in CSR activities based on the IRQUE project which already granted departments in the universities since 2006. Content analysis research techniques were used for analysing preliminary data. The students' CSR activities and lecturers' CSR activities considered for identifying the qualitative coding schemes. The paper concludes with suggestions for further research. It identifies the social responsibility activities conducted by Sri Lankan universities at present and draws conclusions. The study brings to a close that the students are interested to implement CSR activities as a team and contribution with lecturers and the society. Furthermore, lecturers now reluctant to do those CSR activities because of non- supporting activities from UGC, less financial ability, overtaxed from teaching staff, country political instability and their work load. In conclusion, comparing with 2008 CSR activities and present scenario of universities, students work with CSR activities have been increased in many ways of student's organizations. Lecturers engage in CSR activities are considerably decreased than the period of 2008.

Keywords: CSR, UGC, Students, Teachers, content analysis

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Role Demand and Work Life Balance Experiences in Sri Lankan Women Employees in Different Ethnic and Cultural Groups: A Conceptual Model

Welmilla I.¹

This study proposed a framework for the moderating effect of different Ethnic groups and cultural groups on the impact of role demands and work life balance (WLB) of Sri Lankan women academics. The global trend of women participation in their career is increased considerably. As increasing the dual career earners and single parent (only women), more employees are now playing dual role as an employee and a parent, which means they are combining work and family roles simultaneously. The majority of studies of WLB experiences carried out under western country context. There limited studies examined the moderation effect of cultures and ethnicities on WLB experiences in those countries. However, the results of the past studies of developed countries, were lacking of inconsistency. Furthermore, there is a dearth of research that addressed how culture and ethnicity influence the role demands and WLB experience of women employees in different ethnic groups in the developing countries like Sri Lanka. Moreover, no studies have been conducted to determine the moderating effect these two variables like culture, ethnicity on the relationship role demand and WLB experience in Sri Lanka. In order to bridge the gap in the literature, this study proposes a conceptual model identifying two moderating variables; culture and ethnicity based on the extensive review of the literature. Hence, a research framework has been propounded to determine the relationships between the constructs in a future study.

This conceptual model is significant to provide information regarding an association between role demands (work and family), satisfaction (work and family) and interferences (work-interfere and family interfere). Furthermore, through the model it can identify the moderation effect of ethnicity (Sinhalese and Tamil) on relationship between role demand and WLB experiences and moderation effect of cultural dimension of collectivism vs. individualism on relationship between role demand and WLB experiences of Sri Lankan women. In addition, the conceptual model will serve as additional literature on the role demand and WLB experiences among women employees in Sri Lanka that has not been explored.

Keywords: Role Demands, Work life balance (WLB) Experiences, Work, Family, Culture and Ethnicity

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The Impact of HR Key Result Areas on Intention to Quit from the Job of Production Floor Workers in Sri Lankan Garment Industry

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In today's competitive environment, employee retention has become important to thrive and achieve success. HR departments focus on key results areas such as recruitment, rewarding, training and development. Therefore, the management activities should be aimed at identifying the employee's intention to stay through practicing key result areas effectively. Hence, the objective of this study is to identify the impact of HR key results areas or HR practices on employee intention to quit. A descriptive study was done to examine the impact of HR key result areas on production floor workers' intention to quit of MNO Garments operating under MAS Holdings in the Biyagama export zone. The study investigated the effectiveness of HR key result areas which can influence the intention to quit among production floor workers.

The research framework consists of one dependent variable and one main independent variable which have three sub variables. They are recruitment, training and development and remuneration. Three hypotheses were formulated using deductive approach. Variables are neither manipulated nor controlled for the study. Sample consisted of 100 production floor workers who were randomly selected from 10 modules including 10 employees selected from each module using the stratified random sampling method.

Measures of the study had possessed sufficient validity and reliability. The structured questionnaire, which consists of 43 statements with five-point scale, was used in order to collect the data. Unit of analysis was individual since data was collected from production floor workers. The data analysis included the univariate, bivariate, and multivariate analysis.

The results indicated that there is a strong negative relationship between HR key results areas and intention to quit as well as strong impact of the independent variable on the dependent variable. Therefore, it is concluded that Human Resource key result areas and employee intention to quit strongly relates negatively in the garment industry production floor worker in Sri Lanka.

Keywords: Human Resource Key Result Areas, Employee Intention to Quit, Recruitment, Rewarding, Training and Development, Garment Industry

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The Impact of Labour Constrains on Productivity: A Study Based on Handloom Industry in Western Province

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Human factors are the very critical factors concern with other resources which can be contributed for the production process. Due to considerable amount of labors have been employed at the weaving industry in Sri Lanka, the rate of Human Resources (HR) related issues are high in this sector. A few studies have been done in this particular sector, but no one address of the HR issues. Therefore, the main objective of this study was to investigate the impact of labour constrains on productivity in weaving industry in Sri Lanka.

Basically this is a qualitative study. Three hypothesis were developed based on three main labour constrains. Variables are neither manipulated nor controlled for the study. Hence, the study was conducted in a non-contrived setting. As the data for this study was collected at a single point in time, the study was cross sectional in time horizon. Measures of the study had possessed sufficient validity and reliability. Structured questionnaire was given for the weaving workers and the unit of analysis was individual. The sample was selected based on Western Province, one weaving center in each district. The gathered data was analyzed by using descriptive statistic such as mean and standard deviation. The data was analyzed using SPSS 20 software. The data analysis included the univariate, bivariate, and multivariate analysis.

The research revealed that, there are no relationships between wages, and working conditions and productivity of weaving workers. Employee skills positively, but weakly correlate with productivity. Hence, it is concluded that there is a positive and relatively weak relationship between only employee skills and the productivity of the weaving workers in Western province.

Keyword: Labour Constrains, Wages, Skills, Working Conditions, Productivity

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Credit Risk Assessment and Credit Default Behaviour in Sri Lanka

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This research investigates effectiveness of credit risk assessment in identifying credit default behaviour of bank borrowers. Accordingly, this research aims to examine the credit risk assessment variables used in credit risk assessment, effectiveness of credit risk assessment and formulate a model to assess the credit risk - probability of default. Research findings of Fatemi & Fooladi (2006), Kalapodas & Thomsan (2006), Richard et al. (2008) and Chen et al. (2015) emphasized that even though credit risk assessment is an important function in the field of banking and finance there are several challenges further there is a research gap in identifying how effectively credit risk assessment can identify default loan behaviour. In the conditions of increasing government sector non-performing loan balance, increasing pressure in NPL provisioning, concentration of Sri Lankan NPL among few banking entities it is high time to effectively assess credit risk to overcome credit decision problem. Researcher has examined 106 credit events which included 53 credit default and 53 non default facilities using Pearson Chi square, Cramer's V and independent sample T test to examine the bivariate statistical relationship between individual independent variables with credit default behaviour and observe if there is any statistically significant difference between default and non-default bank borrowers. Researchers have used binary logistic regression approach to identify effectiveness of credit risk assessment and found financial and loan variables are statistically significant and developed a model in line with logistic regression approach to determine probability of default with accuracy level up to 86.5%. Further it was identified that in line with in line with EXP (B) values obtained by increase in 1 unit of selected credit risk variables - financial, loan, borrower specific and repayment specific oddness of non-default is increased by 26.864, 3.187, 0.744 and 1.723 respectively.

Keywords: Credit risk, Credit risk assessment, Credit default behaviour, Financial sector assets

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Job Satisfaction and the Employees' Perception of Their Performance in Small and Medium IT companies in Coimbatore City of India

Anbarasu Thangavelu¹, Dr. J. Clement Sudhahar², Dr. W. R. P. K. Fernando³

The Indian IT industry is having many challenges in managing their employees such as turnover, skill updates, performance management etc. While performance management is done in a more structured way in large IT companies, the small and medium IT companies do not follow the same approach towards the performance management of their employees. This research paper investigated the relationship between employees' job satisfaction and the employees' perception on their performance. A survey was conducted in small and medium sized IT companies in Coimbatore city of Tamil Nadu, India. The relationship between job satisfaction dimensions and various demographic characteristics of the employees and their perception of their performance was analysed. The data for the survey was collected using self-administered questionnaire which was based on COPSOQ and industry employee effectiveness surveys. The data was quantitatively analysed using Z-test, Chi-square and one-way ANOVA. The analysis resulted indicate that there was a significant correlation between job satisfaction, feedback, employee satisfaction on the perception of performance. In addition, a strong correlation was found to be existing for the presence of the Performance Management system in the company, the frequency of the PM process, and the perception on their performance. No statistically significant correlation was found to be existing for the educational base, age group, experience of the employee and the perception. It was also found that amongst the small and medium IT industry, more than 50% of the companies conduct the performance management annually and face to face discussion is the predominant appraisal method used followed by the rating scales. Further, this paper presents the limitations of the study and suggestions for the improvement of the perception amongst the small, medium IT industry.

Keywords: Perception of Employee Performance, Job Satisfaction, IT Industry, Small and Medium IT Industry.

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Computing & Technology

Recommendations for Students in Higher Education: A Machine Learning Approach

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Educational Data Mining is a rising discipline in Data Mining setting which concentrated on creating systems for investigating one of a kind data that starts from educational settings, and utilizing those procedures to better comprehend students and the settings which they learn in. There were numerous potential circumstances for applying data mining in education, such as; predicting the performance of students in education domain, advancement of student models, making methodologies for instructive help, settling on decisions to growing better learning systems, upgrading the execution of students and lessening the dropout rate of students and so on. There were sure examinations directed in dissecting students' data to foresee the execution in light of data mining approaches utilizing machine learning algorithms. However, a few of them were guiding the students using the recommendations of educators to success in their academic lives. The key objective of this research is to provide educators' recommendations to students in higher education through data analysis using machine learning algorithms. In this experiment, the data about more than 3000 students with eight attributes; age, gender, A/L Stream, A/L English Grade, does the student has repeat modules, GPA of Semester1, GPA of Semester 2 and Pass status of year 1 were included into the research sample who registered and were following their first academic year of an Information Technology degree in an institute. Three classification type machine learning algorithms were used to build the predictive model. They were Naïve Bayes algorithm, Decision Tree algorithm and Support Vector Machine algorithm. The accuracy of the models built by each algorithm have been tested against each other to identify the best model and extracted the most influencing/ important attributes in the model to predict the final grade (pass/fail) in the end of first year of the students. Accordingly, the accuracy measures of Naïve Bayes, Decision tree and Support Vector Machine were recorded as 74.67%, 74.01% and 74.01% respectively and it was clear that all three algorithms were holding almost same accuracy level. However, the model generated by Naïve Bayes algorithm has been selected since it was outperformed the rest. Then rank features by importance method was used as the feature selection method to identify the most influencing factors of the predictive model. As the result of it, past repeat modules, GPA of Semester1, GPA of Semester 2 were extracted as the most influencing attributes. Furthermore, these attributes were tested using correlation analysis to measure the significance of the relationship with the target attribute. According to this study, the educators will be able to recommend the students to score good marks for assessments of the subjects to obtain a better GPA to semester 1 and semester 2 without failing the modules to successfully complete the first year of the degree course which make more beneficial for educators as well as students to be success.

Keywords: Educational Data Mining, Machine Learning, Accuracy, Feature selection, Grade Point Average

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Comparative Study on Decentralized Cloud Collaboration (DCC)

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Cloud collaboration is a billion-dollar industry, for sharing and co-authoring files, in which the files are uploaded to a remote storage. In the current age of information technology, cloud collaboration expects to see a significant amount of growth, as more organizations look to leverage the benefits of the industry specifically in the areas of flexibility, cost-efficiency and security. However, despite the indisputable benefits provided by collaboration services, there are several inherent weaknesses such as high server costs for service providers, illegal data mining in trust-based architecture, security loopholes, and unethical government surveillance. Thus, decentralization (removal of client-server architecture) will mitigate these traditional server expenses, data failure and outage, as well as the increment of security, and privacy of data.

In this paper, we describe about cloud collaboration, their impacts on adaption, existing research background relation to decentralized cloud collaboration, and proposing solutions using decentralized architecture. In particular, we propose an innovative approach, implementing client-side application, distributed storage, blockchain, and peer-to-peer (P2P) protocol.

We propose client-side application which standardizes client side encryption (asymmetric encryption), file sharding, block exchange protocol, version control, and multiuser real-time collaboration through P2P communication to allow collaborators to store, share, and co-author without third party reliance. The distributed storage consists of storage space contributed by volunteer nodes to store collaborators data. As generally data availability is a function of probability in a decentralized network, we propose a novel design using RAID mechanism, and node failure management to improve fault tolerance. The blockchain act as a distributed data management platform to store contracts of volunteers, and generalized Merkle DAG challenges, which data verifiers (miners) can use to ensure data integrity of data in other nodes though challenge-response technique. The P2P protocol maintain consensus in decentralized network between client-side application, distributed storage, and blockchain, by creating a distributed network with efficient message routing and other desirable qualities to improve fault tolerance of the network.

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Virtual Reality and Augmented Reality Enabled New Product Development Process Model for Performance Apparel

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Consumer demands for performance apparel are constantly changing with the dynamic needs of life styles. Criticality of such demands and the determinants of efficiency, have driven considerations for mass customized products within sustainability boundaries of performance clothing manufacturing. Currently, relevant industries benefit from advanced digital technology applications; and in essence, virtual and augmented reality have gained popularity in apparel as they fuse the physical world with the virtual world. Within this context, this study sought to develop an empirical, new product development (NPD) process model, enabled with Virtual Reality (VR) and Augmented Reality (AR) to support, simplify, and reduce cycle times of processes to boost efficiency in the global apparel business. Data collection was based on 22 indepth interviews from industry experts and academics in the field. The interviews were conducted in both Sri Lanka and United Kingdom; and critically analysed qualitatively. Findings resulted in the development of the NPD process model which permitted visualisation of diverse NPD functional stages and information flow between value chain partners in the apparel value stream. Main advantages of such VR and AR in NPD are, 1) personalized customer needs through interactive platforms; 2) advancement of the decision-making process based on visualized environments; 3) optimisation of resource utilization by reducing number of physical prototypes. It is contended that VR and AR technologies will enable diversified product ideas into feasible product outcomes while assuring the sustainable growth in the business. This empirical model is an outcome of iterative process modelling, based on qualitative interviews and current literature. Subsequently, this process model will be a comprehensive guide for software developers to create relevant simulators to augment any NPD processes in performance clothing manufacturing and similar commodities in future.

Keywords: Augmented Reality, New Product Development Process, Performance Apparel, Virtual Reality

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Usage of Computer and Internet among Undergraduates: Knowledge, Awareness, and Concentration on Privacy and Security Management and Internet among Undergraduates: Knowledge, Awareness, and Concentration on Privacy and Security Management

G.P.S. Nalaka^{1*}, H.P. Diunugala²

Today, in twenty first century information technology plays a vital role of every aspect of human life, especially in process of education. Significantly, the usage of computer and Internet is expanding among undergraduates. The aim of the present study was to assess the knowledge, awareness and concentration on privacy and security management of computer and Internet usage among undergraduates. 420 undergraduates from the University of Sri Jayewardenepura were selected randomly for the survey. A web and paper based questionnaire was used to collect data. Summary measures and data presenting tools were used under descriptive analysis. Usage knowledge of computer and Internet is consisted two components as the computer literacy and the digital literacy. Composite indices were constructed to measure the computer literacy, digital literacy, awareness, and concentration on privacy and security management which were monitored through Likert scale statements. Cronbach's alpha, the Kaiser-Meyer-Olkin measure of sampling adequacy tests and the Bartlett's test of sphericity were used to diagnose the feasibility of the data reduction. With respect to the composite indices, the level of computer literacy among undergraduates is 83.83% and it is a good sign. The level of digital literacy among undergraduates is 61.23% but is not much higher as computer literacy. There is lack of security awareness among undergraduates since the average level is 51.23%. The level of security management among undergraduates is 68.81% while the level of privacy concentration among undergraduates is 69.62%. As the results of one sample t-tests, except security awareness, other indices are over the level of 60% significantly. Therefore, the levels of computer literacy, digital literacy, security management and privacy concentration are in higher level among the undergraduates. However, the awareness about security should be empowered among undergraduates. Also, it is important to improve the digital literacy among undergraduates. Therefore, seminars and workshops should be organized to emphasis knowledge so that the individuals will learn to use computer and Internet properly.

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Inquiry Based Learning Approach in Introductory Level Science Education

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In today's world, science education has been shifted from the traditional "Passive Learning" to the "Active Learning" approach. Although traditional teaching is effective in disseminating large body of content to a large number of students, it often fails to stimulate students' enthusiasm, confidence, and motivation, and thereby fails to enhance critical thinking and problem solving skills. The result is a mismatch in job market demand and supply as the graduates are lacking in appropriate skills and competencies needed in the job market, leading to increased unemployment among the graduates. In order to promote meaningful science education through concepts of Active Learning, number of different teaching pedagogies have been introduced, such as Problem Based Learning (PBL), Activity Based Learning (ABL) and Inquiry Based Learning (IBL). Current study focuses on the implementation of an Inquiry Based instructional design to enhance chemistry laboratory skills of undergraduates. Typically, chemistry laboratory classes utilize a "cook book" approach where students follow the directions in an experimental procedure. Although this approach is effective in teaching a new laboratory technique, it highly limits the level of learning as it doesn't provide a comprehensive understanding of the real world applications of the experiment. In the current IBL approach, each laboratory class was composed of four components, (i) Case Study session (ii) Pre-lab Assignment (iii) Laboratory session and (iv) a Post-lab activity. Case study session was an interactive group activity where a comprehensive real world problem/scenario related to each laboratory topic was discussed prior to the laboratory session. Students were asked to think critically on the scenario, and design an experiment to solve the problem. An inclusive learning environment was created in the classroom where each group had to present their solution and provide feedback to peers. Pre-lab assignment was designed to facilitate and assess students' subject knowledge and logical thinking, while the post-lab activity was designed to provide a deeper understanding by emphasizing the theoretical background. Assessment of this novel IBL approach consisted of student surveys, feedbacks, and comparison of students' grades. Significantly higher student satisfaction and performance was observed in the study signifying the positive impact of active learning towards the success of students' learning.

Keywords: Evidenced Based Science Education, IBL, Active learning

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Behavioural Modelling Approach to Simulate Collaboration in Apparel Supply Chains

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With the rapid evolution of technology and competition in the current business context, supply chain collaboration has become a widely spoken and researched topic. It has become a greater challenge to achieve the optimum efficiencies by performing as isolated partners due to the continuous growth in the depth and the width of the chain partners and their activities. In spite of the fact that a number of studies have been carried out in this respect, a very few number of studies have investigated the practical implications of improving collaboration in supply chains. In this study the authors have utilized a simulation-based approach to assess how collaborative practices among different partners in the supply chain, affect the collaboration level of an industry and time dependent variants for an industry to achieve maximum benefits of collaboration. The simulation models were developed using Netlogo open source modelling platform, focusing on three types of agents in the supply chain where the suppliers, manufacturers, retailers and behavior of these different partners was modeled. The study utilizes the apparel industry as the tested and thus, the Netlogo simulation models determine the effects of collaborative practices across those aforementioned partners. As the main outcome, the study has shown that the key step to enhance collaboration in supply chains, is understanding that there is an interdependence among each other and the level of interdependence required, depending on the organization needs and norms. Furthermore, the study simulates how other main factors of collaboration such as strategic alliances, use of collaborative tools and supply chain metrics will affect the time variant of industry becoming collaborative over the time according to the conditions used in the simulation model. This study facilitates the identification of the crucial factors which partners should focus on, in order to enhance the collaboration in their supply chains. The proposed modelling approach can be generalized further in-to similar industries by studying the correlation among the aforementioned factors.

Keywords: Agent-based simulation, Apparel industry, Collaborative supply chains

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Comparison of the Performances of SpdK-means Algorithm and Optimized SpdK-means Algorithm for Clustering Data Points

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The k -means algorithm is one of the widely used clustering algorithms for large datasets. But there are limitations when k -means algorithm is used for very large datasets. This study was carried out to enhance the performance of the k -means algorithm by using parallel programming methodologies. As a result of this study, the Speedup k -means (SpdK-means) algorithm was developed in the parallel environment. But the main drawback of this algorithm was that the cumulative cluster density of the created clusters was different from the initial population. After a careful study on this algorithm it was identified that there were some elements (data points) that were missed out in the clustering process which reduces the cluster quality. This identification led to optimize the SpdK-means algorithm. The aim of this paper is to discuss the performance of the optimized SpdK-means algorithm over SpdK-means algorithm in terms of density of clusters, number of iterations and cluster building time.

Firstly, the SpdK-means algorithm was implemented using C programming language and Message Passing Interface (MPI) programming for a distributed computer system. The SpdK-means algorithm was applied to three real electricity consumption datasets consisting of 80000, 50000 and 30000 data entries for 65 attributes. In this algorithm the dataset was partitioned into several segments and those segments were sent to distributed processors and then the k -means algorithm was applied separately. The cluster densities, number of iteration in cluster building process and cluster building time were recorded to study the performance of SpdK-means algorithm. It was identified that the cumulative density of all clusters was different from the initial population. About 1% of total elements population was missing after clusters were formed.

Secondly, the SpdK-means clustering algorithm was optimized and the missing elements which had equal distances to clusters were carefully gathered to the correct clusters. To measure the performance of Optimized SpdK-means algorithm the same datasets were used and the above experiment was repeated. As an example, the dataset which has 80000 data points, with $k=5$ and connected to two parallel processors, the percentage of missing elements were reduced from 1.59% to 0.01%. When the same dataset was applied for $k = 5, 6,$ and 7 the number of iterations were reduced from 23 to 19, 18 to 15 and 18 to 14 respectively. By analyzing the result for all the datasets, the number of iterations of Optimized SpdK-means was reduced by 20% than the SpdK-means algorithm. Using the same dataset, for $k=5, 6$ and 7 when connected to 2, 3, 4 processors separately, the cluster building time was reduced by 10% to 12% than the SpdK-means algorithm as shown in the TABLE 1. According to the result of the experiment the overall performance of Optimized SpdK-means algorithm was higher than SpdK-means algorithm in terms of cluster density, number of iterations and the cluster building time.

TABLE 1: The cluster building time of SpdK-means and optimized SpdK-means for 80000 dataset when $k=5, 6, 7$ and connected with 3 parallel processors.

Algorithm used	Cluster Building time for different k (seconds)		
	$k=5$	$k=6$	$k=7$
SpdK-means	1.43	1.87	2.13
Optimized SpdK-means	1.29	1.64	1.92

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Medical Sciences

Cost-Effectiveness of Three Approaches to Hysterectomy: A Randomized Controlled Trial

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Background: Hysterectomy is the commonest major gynaecological surgical procedure. There are many approaches in performing a hysterectomy which depend on clinical criteria. However certain patients are suitable to be operated through any approach. The aim of this study was to provide evidence on the optimal approach in terms of cost-effectiveness between non-descent vaginal hysterectomy (NDVH), total laparoscopic hysterectomy (TLH) and total abdominal hysterectomy (TAH).

Methods: A multi-centre three arm randomized controlled trial is being conducted at the professorial gynaecology unit, North Colombo Teaching Hospital, Ragama and gynaecology unit, District General Hospital, Mannar. Results of the Mannar arm are presented. Study population were women needing hysterectomy for non-malignant uterine causes. Exclusion criteria were uterus ≥ 14 weeks, previous pelvic surgery, those requiring incontinence/pelvic floor surgery, co-morbidities which preclude laparoscopic surgery and women who were illiterate. Primary outcome, time to recover following hysterectomy (earliest time to resume all or a combination of activities done prior to surgery) was assessed through an objective questionnaire. A micro-costing approach calculated utilization of hospital resources from the time of presentation to the gynaecology clinic up to six months after surgery. A Kaplan-Meier survival analysis was done with pairwise comparison through log-rank test. Incremental cost-effectiveness ratios (ICER) were obtained by calculating the incremental costs divided by the incremental effects (time to recover) for the intervention groups (NDVH and TLH) over the standard care (TAH) group.

Results

There was a significant difference in time to recover in TLH [28 days (25.9-30.1), $p < 0.01$] versus TAH [33 days (30.3-35.7)]. There was no significant difference between TAH versus NDVH [30 days (24.3-35.7), $p = 0.07$] and TLH versus NDVH ($p = 0.35$). There was a significant difference in direct cost between the three routes; TLH [Rs.58013 IQ1-IQ3(55735-61908)], NDVH [Rs.42969 IQ1-IQ3(38839-47397)], TAH [Rs.45817 IQ1-IQ3(44030-49822), $p < 0.001$]. $ICER_{TLH-TAH}$ was Rs.2439/day compared to TAH. As both the cost as well as the time to recover was more favourable than TAH, $ICER_{NDVH-TAH}$ was not calculated. $ICER_{TLH-NDVH}$ was Rs.7522/day compared to NDVH.

Conclusion

TLH has a faster recovery compared to NDVH and TAH, albeit at a significantly higher cost. The optimum approach to hysterectomy appears to be NDVH in terms of cost-effectiveness.

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Development of A Duration Pattern Test to Assess Temporal Processing Abilities in Normal Hearing Young Adults

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Introduction:Duration Pattern Test (DPT) is a test that can be used for evaluating central auditory processing disorder (CAPD). (Majak, Zamysłowska-Szmytke, Rajkowska, & Śliwińska-Kowalska, 2015). The current dissertation is mainly focused on developing normative data for DPT to use as a reference value to assess temporal processing abilities in Sri Lankan Sinhala speaking normal hearing young adults age ranging from 20.0-28.0 years due to the lack of evidence in normative data for DPT within Sinhala speaking population.

Objectives: The general objective is to develop normative data for DPT in Sri Lankan Sinhala speaking young adults and specific objectives are to develop DPT, to determine normative data for DPT and to determine gender differences and intra-aural differences of DPT.

Methodology: Descriptive cross sectional study was carried out with 128 (74 males and 74 females) for the main study and 20 participants for the pilot study were selected using purposive sampling method. The study setting was Audiology laboratory, Faculty of Medicine, University of Kelaniya. Prior to DPT, case history was taken and hearing screening tests were done to confirm individual subjects with normal hearing. Then DPT (stimuli will give by using GSI 61 Diagnostic Clinical Audiometer [Grason-Stadler, Inc]) was carried out and results were recorded. Data was analyzed descriptively. Non-parametric tests were used to find ear differences and gender differences.

Results and conclusion: The reference value for Sinhala speaking young adults are 73% for both ears. There was no gender differences and intra-aural difference compared to previous studies (Majak et al, 2015; Fuente and McPherson, 2006 and Neijenhuis et al, 2001). Further development of a valid and reliable auditory processing test battery is required for Sinhala speaking population.

Keywords: CAPD, DPT, normative data

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Assessment of Life Style Modifications among Diabetes Patients Attending Primary Medical Care Unit, Yatiyana, Matara

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Introduction: Diabetes mellitus is a major non-communicable metabolic disorder worldwide. With the sedentary life style, prevalence of diabetes is rapidly increasing. Diabetes Mellitus is not curable but can be controlled with diet, lifestyle modifications and drugs. This research study helps to assess socio-demographic factors and life style modifications among diabetes patients attending Primary Medical Care Unit, Yatiyana, Matara.

Materials and Methods: A descriptive cross-sectional study was carried out among 330 diabetes patient attending Primary Medical Care Unit, Yatiyana, Matara. The basic socio-demographic and life style modifications were assessed via interviewer administered questionnaire. Data was analyzed by using SPSS windows version 16.0.

Results: The mean age was 66.45±11.92 with majority being more than 60 years old. Majority of study population (57.3%) were females, married (75.8%) and were unemployed (51.8%), and had good glycemc control (FBS of 80-120 mg/dL). There were only (89) 27% who followed diet control and only (14) 4.2% who had regular exercises. But majority of total population (69.1%) had adhered to the medications and 63.9% had attended diabetic clinic regularly.

Discussion: Lifestyle modifications can be a very effective way to keep diabetes in control. Improved blood sugar control can slow the progression of long-term complications. But diabetic patients in the current study have not adhered to the diet and not regularly carried out exercise; despite they had good glycemc control. This study showed that life style modifications are not satisfactory when compared with medication and clinic attendance. Therefore healthcare professionals should pay extra attention in educating the patients in this regard.

Keywords: Diabetes mellitus, Lifestyle modifications, Primary Medical Care Unit in Yatiyana, Diet control, Exercise

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Knowledge and Practices towards Prevention of Dengue Fever in a Cohort of Advanced Level Students

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Introduction: The objective of this study was to assess the knowledge and practices towards Dengue fever (DF) of a group of Sri Lankan students.

Materials and methods: This was a combined qualitative and quantitative study from June to July 2016. Students in the Advanced Level classes of a trilingual mixed school following different streams (Science, Mathematics, Arts, and Commerce) were enrolled using the cluster sampling method. A face-validated self-administered questionnaire and in-depth interviews were used to collect data.

Results: Of 40 respondents, 80.0 % (n=32) were females. The mean age was 16.3 ± 0.6 years. The mean scores were: knowledge ($68.2\% \pm 12.2\%$) and positive practices towards prevention of DF spread ($46.4\% \pm 29.6\%$). Scores were non-normally distributed [$W(40) = .799, p < .05$]. Twenty percent of the subjects (n=8) believed that direct contact of an infected person can spread Dengue. Majority used nets (60%, n=24), insecticide sprays/coils (55%, n=22) and lotions (15%, n=6) to prevent mosquito bites in general. Forty five percent (n=18) have started using methods to prevent mosquito bites with the fear towards Dengue mosquito bites. The practice scores positively correlated with the knowledge score [$r_s(40) = .269, p = .000$]. According to the qualitative interviews (n=28), majority believed that individuals have an important role in preventing DF.

Conclusions and recommendations: Knowledge and practices towards the prevention of DF were modest in the population. Good knowledge and attitudes were associated with better practices. Thus steps should be taken to enhance knowledge and attitudes on DF prevention.

Keywords: Dengue, Sri Lanka, students, knowledge, practices

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Socio-demographic and Hearing Aid Related Factors that Influence Use of Hearing Aids

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Introduction; Hearing loss (HL) is increasingly recognized as a public health problem. Even though hearing aids (HA) are the primary rehabilitation option, majority of adults with HL who obtain HAs do not use them.

Objectives; The study aimed to identify the factors that distinguish between HA users and non-users, describe the reasons reported by the participants related to their dissatisfaction with the HAs and assess the perceived usefulness of HAs in successful HA owners using International Outcome Inventory-Hearing Aids (IOI-HA).

Methods; It was an analytical cross sectional study. Total of 115 HA owners in the age range from 18 to 80 years were recruited by purposive sampling from three private HA dispensing clinics and two government hospitals. Sinhala version of IOI-HA and questionnaire on demographic and audiological details were given to participants after obtaining their consent. Information on audiological findings and HAs were obtained from the relevant service providers.

Results; A significant association was found between continuous use of HAs and HA provider, family encouragement, ability to manipulate the HA, perceived handicap, and previous HA usage.

Poor quality of sound, disturbance in noisy situations, other side effects, ability to hear without the HA were the most commonly reported reasons for dissatisfaction by the HA users. And poor sound quality, ability to hear without the device, broken device and not getting the ear mould made were the reasons for giving up the HA by non-users.

48% of participants used HA more than 8 hours a day and 70% were satisfied with their HA.

Conclusion; Obtaining the HA from private clinic, presence of family encouragement, ability to manipulate HA, previous HA usage and feeling handicapped without HA were the factors associated with regular use of HA. Poor quality of sound was the most common problem of the HA. The scores of IOI-HA indicated that higher number of HA users were having better outcomes by using HAs.

Keywords: Hearing loss, hearing aids, International Outcome Inventory-Hearing Aids (IOI-HA)

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Assessment of Background Frequency of Micronuclei Formation in Two Selected Populations in Sri Lanka

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This study assessed background frequency of micronuclei formation using biodosimetry in persons living in Norochcholai and Ragama in Sri Lanka. Biodosimetry, a technique used to assess exposure to radiation, is considered superior to physical dosimetry. It gives a clearer picture of individual variation of susceptibility to radiation and human risk assessment. This study establishes baseline levels of micronuclei formation in a Sri Lankan population to monitor possible radiation accidents that may occur at a nuclear power plant that was commissioned in nearby India recently. Biodosimetry has been used to detect external and internal exposure to ionising radiations in scenarios of accidental and occupational exposure wherever nuclear power plants are present. 96 healthy individuals from both sexes were selected for the study (in the age range of 20-59 years), comprising 50 from Norochcholai (area closest to the power plant) and 46 (matched for gender, age and life style) from Ragama (as a control). 10ml of venous blood was drawn and the cytokinesis–block micronuclei assay was performed, 1000 binucleate cells were assessed; the median spontaneous micronuclei formation was estimated. Background radiation was measured using an Automess dose rate meter 6150AD. There was no significant difference in the median MN frequency between the two sexes ($p= 0.538$). There was no significant difference between the median background frequency of micronuclei formation between the two study areas ($p=0.539$). Significantly higher radiation dose rate (measured by suevey meter) has been shown in Ragama area compared to Norochcholei area (Mann Whitney $U= 217.00$, $p=0.000$). There was no strong correlation between background radiation and MN frequency in both areas. The MN frequency can be used as a baseline to monitor exposure to radiation in the future. This is important for monitoring radiation hazards and will be useful in case of a nuclear accident.

Keywords: micronuclei, Biodosimetry, Nuclear power plant, background radiation, dose rate

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The Genetic Origins and Molecular Characterization of Sickle Cell Disease in Sri Lanka

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Background: Sickle cell disease (SCD) is globally the commonest monogenic disease. Although the incidence is not as common as in India, it is found in Sri Lanka too. A recent hospital based survey identified around 60 patients in the country but no detailed study of SCD have been done to-date. The genetic origin of Haemoglobin (Hb) S found in Sri Lanka is not yet known.

Objective: To determine the genetic origin and characterize genetic modifiers such as α^+ thalassaemia, β - thalassaemia mutations and *Xmn I* polymorphism of SCD among Sri Lankan patients.

Methodology: Patients were recruited from Mahara (Ragama) and Kurunegala thalassaemia centers as part of an ongoing study. Capillary electrophoresis technique was used to identify and quantify Hb S and sickling test too was subsequently done. RFLP technique was used to determine the Sickle cell haplotype and *XmnI* polymorphism. Gap PCR and ARMS techniques were used to characterize common α gene deletions and β mutations respectively.

Results: A total of 25 SCD patients have been molecularly characterized to date. Majority of the SCD subjects were compound heterozygotes with β -thalassaemia and two were homozygous (HbSS). Mean Hb concentration was 8.4 g/dl (8.0-8.8: 95%CI) while the mean Hb S percentage was 63.6 (58.2-69.0: 95% CI). β mutation studies showed 60.8% of S- β thalassaemia patients had β^+ severe type whereas, the rest had β^0 type. Common α^+ gene deletions were not detected except for two cases with 3.7 kb deletions. None of the patients were +/+ for the *Xmn I* polymorphism.

Twenty two patients were heterozygous for Arab-Indian haplotype while one patient was heterozygous for Benin haplotype. Two homozygous cases were homozygous for Benin haplotype. *Xmn I* polymorphism of *G γ* gene was heterozygous in all Arab-Indian cases while it was negative in all the Benin cases.

Conclusion: There appears to be at least two genetic origins of Hb S in Sri Lanka. (Indian-Arab and the Benin). Most patients seem not to have inherited disease ameliorating genetic modifiers.

Keywords: Sickle cell, Origin, Haplotype, genotype, Sri Lanka

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Optimization of Critical Threshold Values for *Aedes* Mosquitoes based on Breteau Index in Kandy District of Sri Lanka

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Background: Many countries, including Sri Lanka, mainly depend upon *Stegomyia* indices, such as Premise Index (PI), Breteau Index (BI), Container Index (CI), and Pupal Index (PI) for routine entomological surveillance of dengue. Among them, BI remain as the most widely used larval index for vector management prior to and during epidemic incidences. Properly defined threshold values for BI are of essence, to assist the prediction of dengue epidemics and as a leading indicator for vector control. However, Sri Lanka still lacks effective thresholds for BI to initiate and drive dengue vector management activities. Hence, the present study attempts to define threshold values for BI based on an empirical modelling approach for the Kandy District of Sri Lanka.

Methods: Monthly larval index values of BI, for *Aedes aegypti* (BI_{agy}) and *Aedes albopictus* (BI_{alb}), in 4 selected dengue high risk Medical Officer of Health (MOH) areas in the Kandy District for the period of 2010 to 2017, were subjected to a frequency analysis aiming to define critical threshold values for dengue epidemic management. Based on the natural frequency of occurrence, larval index values corresponding to 20, 40, 60 and 85% were selected as threshold values for both BI_{agy} and BI_{alb}.

Results: Four risk thresholds were defined as Low Risk (BI_{agy}>1.77), Risk (BI_{agy}>3.23), Moderate Risk (BI_{agy}>4.47) and High Risk (BI_{agy}>6.23) for *Ae. aegypti* in Kandy district. Further, values exceeding 3.95, 5.38, 6.60 and 8.13 were recognized as Low Risk, Risk, Moderate Risk and High Risk thresholds, respectively for *Ae. albopictus*. Motivation of the community towards source reduction by elimination of dengue vector breeding sites and intensive vector surveillance are advised to be practiced in the risk phase, while target oriented chemical fogging should come into play within the Moderate Risk phase. Extensive fogging is only recommended for the High Risk phase, aiming to drive vector control activities more towards ecofriendly community- based integrated vector management with less attention on chemical- based vector management, unless essential.

Conclusions: Application of the threshold BI values for *Ae. aegypti* (primary vector for dengue) along with cutoff values for *Ae. albopictus*, could be recommended to improve the efficiency of vector control activities, aiming more towards implementation of a community based integrated vector management framework for Sri Lanka.

Keywords: Breteau Index, Threshold values, *Aedes*, Dengue

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Study on Knowledge, Attitudes and Practices Regarding Dengue Fever in a Cohort of Advanced Level Students in Sri Lanka

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Introduction: Dengue is a leading healthcare challenge in Sri Lanka. In 2015, 29,777 dengue cases were reported and this increased by 85.2% (55150 cases) in 2016. Last 10 months of year 2017 reported 158854 suspected dengue cases. Of them, about 30% were children of 5-19 years. Schoolchildren of advanced level (A/L) (Grade-12&13) are influential and useful on dengue control activities in schools.

Objective: To determine knowledge, attitudes and practices regarding dengue in A/L students in Sri Lanka.

Method: A cross sectional study was conducted with 258 randomly selected A/L students who attended medical exhibition, Faculty of Medicine, Ragama, Sri Lanka-2016. Data were collected before students visited the exhibition, using questionnaires and analyzed.

Result: Study group consisted of 53.1% (137/258), 21.7% (56/258), 7% (18/258) & 18.2% (47/258) students (16-19years) belonging to biology, mathematics, commerce and art streams respectively with 53.9% (139/258) females. According to districts; 29.8% (77/258) from Gampaha, 26% (67/258) Kurunegala, 24.4% (63/258) Anuradhapura, 7.0% (18/258) Kaluthara, 3.1% (8/258) Ampara, 2.3% (6/258) Puttalam, 1.9% (5/258) Ratnapura and Colombo and 0.8% (2/258) Polonnaruwa and Monaragala.

Aedes mosquito as the vector was known by 89.5% (231/258) and 69.4% (179/258) could identify the mosquito correctly. Dengue mosquito bite as during daytime was known by 78.3% (202/258) and 90.7% (234/258) knew correct breeding sites. One measure to prevent mosquito spread or bites was known by 98.4% (254/258) of students. Mosquito nets were identified as a preventive measure by 86.4% (223/258).

With regarding symptoms of dengue, fever was identified by 93% (240/258). Two or more other initial symptoms of dengue were known by 67.1% (173/258); nausea (20.9% (54/258)), vomiting (41.1% (106/258)), muscle pain (50.8% (131/258)), severe headache & retro-orbital pain (46.1% (119/258)), rash (57% (147/258)) and joint pain (25.6% (66/258)).

Awareness on consulting a doctor, if fever continuous beyond three days was 83.3% (215/258) whereas 13.9% (36/258) had inappropriate perceptions (obtaining aspirin - 5% (13/258), jeewani-8.9 % (23/258)).

Conclusion: In the study group, knowledge of dengue vector was satisfactory. However, awareness of main symptoms of dengue was poor except high fever. Measures to follow suspected dengue were satisfactory but 5%-9% had wrong perceptions. Dengue control programs in schools would need to focus on improving awareness of dengue symptoms.

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Role of Larval Indices on the Incidence of Dengue Epidemics in Akurana, Medical Officer of Health (MOH) Area, Kandy

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Background: As in many other Asian countries, vector control entities in Sri Lanka also depend upon larval indices as the major driving factor of routine entomological surveillance and management of dengue vectors. However, studies aimed at defining the role of larval indices, which reflect the population dynamics of dengue vectors, on the incidence of dengue outbreaks are limited. This is mainly due to restrictions in long-term vector density related data. Hence, the current study attempts to evaluate the role of larval indices on the incidence of dengue epidemics in Akurana, Medical Officer of Health (MOH) area.

Methods: Routine entomological surveillance for dengue vectors was conducted during January, 2015 to August, 2017 at monthly intervals by standard dipping, siphoning and pipetting methods based on the nature of the breeding habitat. Monthly records of reported dengue cases from 2009 – 2016 to the relevant MOH officer were obtained, along with the larval vector indices [Premises Index (PI), Container Index (CI) and Breteau Index for *Aedes. aegypti* (BI_{agy}) and *Ae. albopictus* (BI_{alb})] for respective months in each year. Correlation analysis (Pearson's correlation=PC) in SPSS (Version 23) was used to identify the relationship between vector indices and dengue epidemics at different lag periods.

Results: Average monthly distribution of *Ae. aegypti* remained as 3.87 ± 0.719 (Mean \pm Standard Error), while *Ae. albopictus* indicated a mean value of 6.32 ± 1.78 . *Ae. aegypti* (BI_{agy}) dominated the incidence of dengue epidemics, while the impact of *Ae. albopictus* (BI_{alb}) and PI remained non-significant. Significant positive correlation was observed among (BI_{agy}) and the reported dengue cases at the monthly level with lag periods of one month (PC = 0.86; p<0.05 at 95% level of confidence) and two months (PC = 0.69; p<0.05). In addition, CI also denoted a significant positive moderate correlation (p<0.05) at lag periods of one month (PC=0.45) and two months (PC=0.39).

Conclusion: Being the primary vector of dengue, population dynamics of *Ae. aegypti* strongly denotes the temporal variations in dengue outbreaks with lag periods of 1 and 2 months in Akurana. Therefore, more attention should be paid on (BI_{agy}) by the relevant entities in vector management of dengue vectors.

Keywords: Dengue, *Aedes*, Breteau Index, Larval Indices, Akurana

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Clinical Pharmacists' Interventions to Improve Inhaler Use among Chronic Kidney Disease (CKD) Patients

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Introduction: Inappropriate use of asthma inhalers can lead to increased hospitalizations, reduced quality of life (QOL), loss of productivity and increased health related costs.

Pharmacist-led interventions have shown an improvement of inhaler technique and use. The following cases describe opportunities for clinical pharmacist-led interventions to resolve problems associated with inhaler use identified from an ongoing study in renal clinic, Teaching Hospital, Anuradhapura.

Case 1

A 61 year old male with end stage renal disease and asthma was prescribed salbutamol and beclomethasone dry powder inhaler (rotarhaler), twice a day but was still experiencing frequent asthma attacks. On questioning, the study clinical pharmacist (CP) discovered the patient had poor understanding of instructions and was alternating the use of the two inhaler drugs. The rotarhaler was 10 years old, and the patient was unaware of cleaning requirements. The CP organized counseling for the patient on inhaler use and advised the patient to get a new device.

Next clinic visit the patient came up with a cyclohaler. He didn't know the inhaler techniques of a cyclohaler. CP discussed this incident with dispensing pharmacist and arranged a counseling session for the patient.

Case 2

A 65 year old male with chronic kidney disease, hypertension and asthma was prescribed salbutamol and beclomethasone 400 mcg twice daily. The patient however used salbutamol in the morning and beclomethasone at night which reduced his QOL and has got frequent asthma attacks. CP counseled about importance of proper adherence to asthma medication to improve QOL.

Next visit patient reported improved control of his asthma by twice daily inhaler drug use. But he inhaled both drugs simultaneously by breaking the capsules of dry powder and inserted both powders into the inhaler. The clinical pharmacist discovered the incorrect technique and counseled the patient.

Discussion and Conclusion: Patients' lack of health literacy is a major contributing factor for inappropriate inhaler technique and use. Simple educational programs can help to promote appropriate inhaler use.

Initial thorough patient counseling of inhaler use and continuous assessment of patients' inhaler use by a clinical pharmacist are beneficial for asthma control among CKD patients.

Keywords: clinical-pharmacist, counselling, asthma, inhaler, CKD

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Incidental Extra Spinal Findings in Magnetic Resonance Imaging of Spine: Beyond the Focus

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Introduction

Magnetic resonance imaging (MRI) of the spine is a special imaging modality to evaluate various symptoms in spine including low back pain. However, extra spinal incidental findings (IF) which detect additionally during the MRI might influence the management of the patient.

Objective: To describe IF detected during MRI spine and to emphasize the importance of identification of those.

Methodology: Five patients who underwent MRI spine for back pain were selected and imaging appearances of various IFs were discussed. GE MR 360 advance 1.5-tesla MRI machine was used for the imaging.

Results: Case 1:

Thirty-seven year old female patient was evaluated for chronic neck pain. Sagittal T1W and T2W images show moderate size cystic lesion on posterior fossa of the brain. Follow-up MRI brain showed a moderate size arachnoid cyst causing indentation to the cerebellum.

Case 2: Sixty-seven year old female patient was assessed for low back pain (LBP). T2W sagittal and coronal images showed 3.7 cm size oval shape mass medial to the right kidney. The mass was identified as an accessory kidney in follow-up contrast computed tomography (CT).

Case 3: Thirty-eight year old female patient was assessed for LBP. Sagittal T1W, T2W and STIR images showed moderate size cystic mass with internal fat, fluid and low intensity nodules suggestive of calcium. MRI lumbar spine was uneventful. Subsequent surgery and histology revealed the mass as a dermoid cyst.

Case 4: Forty-five year old male patient was evaluated for LBP. Sagittal T2W and Coronal STIR images showed uncomplicated left side pelvic kidney. Follow-up ultrasound scan too confirmed the diagnosis.

Case 5: Eighty-three year old male patient presented with back pain and lower limb weakness. Sagittal and axial T2W images showed multiple spinal metastasis and coronal STIR images showed incidentally detected pleural based lung mass as a primary lesion.

Conclusion:

Systematic observation and report of extra spinal IFs are vital as some of the findings could have significant impact on patient management.

Keywords: Incidental findings, MRI-spine

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Detection of Dengue Co Infections Using a Novel Single Tube Multiplex Reverse Transcription Polymerase Chain Reaction

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Co-infection in individuals by more than one Dengue Virus (DENV) serotype has been reported in regions where multiple serotypes co-circulate. Co-infections can be detected using Polymerase Chain Reaction (PCR). Semi-nested multiplex PCR with Lanciotti's primers is a widely used PCR method for serotyping DENV and it has also been used for detecting co-infections. Despite of being widely used, Lanciotti's method may be sub-optimal in detecting co-infections as overlapping primer targets will create a bias in the amplification of the serotype with a low viral load. This could lead to underreporting of co-infections. Nine new non- overlapping primers were designed to independently amplify each serotype with minimal competition between primers to their target. In mixed infections, novel PCR assay exhibited higher sensitivity in detecting the minor serotype compared to Lanciotti's method. The new method can also detect all four serotypes in viral RNA isolated from viral cultures and patient samples in a single tube multiplex PCR. This enables rapid and cost-effective serotyping with improved sensitivity in detection of co-infections in clinical samples.

Keywords: Dengue, Dengue RT-PCR, Dengue co-infections, Dengue Serotyping

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Case report: *Edwardsiella tarda* Sepsis following Abortion

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Introduction

Edwardsiella tarda is a Gram negative bacterium of Family Enterobacteriaceae - primarily a pathogen of fish. Human infections with *E. tarda* are rare. Reports of *E. tarda* septicemia is exceptional (<5%) with mortality of 44.6%. We report a case of *E. tarda* sepsis following an abortion.

Case report

A 31 year old female patient (P₃C₂) with period of amenorrhea of 12 weeks and 2 days was admitted with a history of lower abdominal pain and vaginal bleeding for 1 day with a similar episode 1 week prior. Patient was febrile with 101⁰F on admission. Her past medical history was uneventful except gestational diabetes. Hematological investigations on admission revealed WBC–17.5X10³/UL with 80.0% granulocytes and CRP-52 mg/L. Abdominal ultrasound scanning found aborting fetus. Patient was started with empirical antibiotics as intravenous cefuroxime, metronidazole and gentamicin.

Blood culture developed turbidity, 24 hours after incubation and grew Gram negative, motile bacillus on blood, chocolate and MacConkey agar as non-lactose fermenter. Moderate amount of H₂S production was in Kligler Iron Agar (KIA) with acid butt and alkaline slant. Isolate was urease negative and indole positive. It was identified as *E. tarda* and was sensitive to most of the antibiotics: amikacin, cefotaxime, ceftazidime, cefuroxime, ciprofloxacin, co–amoxiclav, gentamicin and netilmicin but was resistant to polymyxin as per Stokes' comparative disc diffusion method.

Evacuation of Retained Products of Conception was done 2 days following admission. Following antibiotics, patient was afebrile and improved clinically. Parenteral antibiotics were continued for one week, patient had uneventful recovery and was discharged with one week of oral antibiotics.

Discussion

E. tarda resides in aquatic environment frequently in subtropical regions with humid and warm climates. Majority of human cases were reported with underlying risk factors as hepatobiliary diseases, iron overload, neonatal state and exposure to contaminated fresh/brackish water. Of importance in laboratory diagnosis, *E. tarda* is motile, non-lactose fermenting, indole-positive, urease-negative, H₂S-positive and majority (90%) are resistant to polymyxin while sensitive to most other antibiotics.

Due to non-availability of modern identification methods as, VITEK®, MALDI-TOF or PCR for confirmatory diagnosis, the bacterial identification was performed using phenotypic characters & biochemical tests.

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Hand Washing Practice among Intern House Officers (IHOs) during Working Hours at Colombo North Teaching Hospital (CNTH), Ragama
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Introduction: Contaminated hands of healthcare workers (HCWs) are known to cross-transmit microorganisms causing hospital-acquired infections (HAIs). Hence, hand hygiene (HH) is the simplest and the most effective method to prevent HAIs. Therefore, all HCWs needs to adhere to recommended hand washing (HW) practices provided adequate HW facilities. Amongst HCWs, IHOs would have direct contact with patients mostly.

Objective: To describe HW practice in IHOs and facilities available for effective HH in CNTH, Ragama.

Methodology: Descriptive cross sectional study was conducted from 01.06.2017–31.09.2017 involving 2168 HW opportunities of 50 IHOs in 22 wards of CNTH. HH practices were assessed against WHO defined criteria; five opportunities for HH and six-steps in HW technique. HH facilities were assessed by evaluating availability of water supply, washing agent (soap), disposable hand towels and alcohol hand rub. Sink: bed ratio and display of poster with HW steps near sinks were noted.

Results: Of 2168 HW opportunities, analysis of WHO defined five moments for hand hygiene were; before touching the patient-35.1%(761/2168), before aseptic procedure-5.95%(129/2168), after body fluid exposure risk-8.71%(189/2168), after touching the patient-28.96%(628/2168) and after touching patient's surrounding-21.26%(461/2168). Compliance with HW in same order was 2.23%(17/761), 90.69%(117/129), 80.42%(152/189), 13.05%(82/628) and 3.47%(16/461). All six-steps in HW were followed by 13.8%(53/384). Of HW steps, step 1,2,3,4,5 & 6 were followed by 100%(384/384), 64.32%(247/384), 81.77%(314/384), 42.18%(162/384), 40.62%(156/384) and 26.56%(102/384) respectively. HH facilities (water supply and washing agent) were observed in all 22 wards. Only 18 wards had disposable hand towels and display of HW steps. Sink: bed ratio ranged 1:18-1:46. Number of alcohol hand rubs / ward was ≤ 6 .

Conclusion

The most common HW opportunity observed in this study was 'before touching the patient' but with the least compliance. The best HH compliance was for 'before aseptic procedures'. Of those comply with HH, only minority adhered to correct HW technique. Step-1 was complied best while step-6 was neglected mostly. Though water supply and washing agents were available in all wards, zero satisfaction was noted in sink: bed ratio. Though one alcohol hand rub per one bed is the standard, it was well below the standard in all wards

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Science

Protective Effect of Coconut Cake Phenolic Antioxidants on Oxidative Stress Induced Macromolecular Damage in HEP-2 Cells

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Coconut cake, a by-product of the coconut oil manufacturing is a rich source of phenolic antioxidants. The majority of research dealing with phenolic antioxidants is primarily focused on the extraction of phenolic substances from plant materials and assessment of antioxidant properties in chemical systems. However, such assays in chemical systems do not guarantee the antioxidant properties of phenolic substances in biological systems. In this study, inhibition of H₂O₂ induced oxidative damage on lipids and proteins by coconut cake phenolic antioxidants (CCPA) was studied in HEP-2 cells as the biological system. CCPA were extracted with 70 % ethanol and the total polyphenol content was measured by Folin Ciocalteu method. The CCPA content, calculated as gallic acid equivalents was 182.81 ± 28.73 mg/kg. The *o*-diphenols content, calculated as caffeic acid equivalent using a method reported by Gutfinger was 66.83 ± 16.50 mg/kg. Oxidative damage in HEP-2 cells was induced by adding H₂O₂ in PBS for 1 hr. The maximum concentration of H₂O₂ that does not affect the cell viability (>99 %) was determined as 100 µM using Cell-Titer Glo Luminescent Cell Viability Assay. Formation of thiobarbituric acid reactive species (TBARS) due to lipid peroxidation in HEP-2 cells (0.010±0.000 µM/mL) compared to the control (0.007±0.000 µM/mL) without H₂O₂ was inhibited with 0.5mg/mL CCPA (0.007±0.000µM/mL). Protein oxidation (3.05±0.06nmol/mL) compared to the control (2.14±0.06nmol/mL) without H₂O₂ as assessed by protein carbonyl formation assay with 2, 4-dinitrophenylhydrazine was also inhibited by treating the HEP-2 cells with 0.5mg/mL CCPA (2.41±0.06 nmol/mL). Thus, CCPA can inhibit oxidative stress-induced macromolecular damage of lipids and proteins in biological systems.

Keywords: Coconut Cake Phenolic Antioxidant, Oxidative stress, MDA, Protein oxidation

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Effect of Selected Aquatic Macrophytes in Controlling Some Human Enteric Pathogens of Sewage Sludge Collected from Common Waste Water Treatment Plant at Biyagama EPZ

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The macrophyte based constructed wetlands (CWs) are economically feasible, easy to manage and an effective phyto-remediation method to treat sewage sludge safely. These wetlands have also been used for the removal of human enteric pathogens from sewage sludge. The present study assessed the effect of *Eichhornia crassipes*, *Salvinia molesta* and *Pistia stratiotes* in controlling fecal coliform and *Salmonella* in sewage sludge collected from the Common Waste Water Treatment Plant (CWWTP), EPZ Biyagama in dry and wet seasons. Equal weights of acclimatized young plants of each species were placed in three pre-set batch type CWs simultaneously. Controls were maintained and triplicates of all treatments were continued for 28 days. Sludge samples were analyzed weekly for fecal coliform and *Salmonella* following USEPA standard methods. Data were analyzed using MINITAB (version 14.12.0). According to the results, the fecal coliform content in raw sludge did not show a significant difference between dry (3.1×10^4 MPN/g (dry weight)) and wet (3.7×10^4 MPN/g (dry weight)) seasons (Two-sample T-test; $p=0.670$). CWs that contained different macrophytes lowered the initial fecal coliform content after the 3rd week in the dry season. Nevertheless, a gradual reduction of fecal coliform content was observed in wet season in all CWs that contained macrophytes. On the other hand, the controls lowered the fecal coliform content up to 2nd week and then increased in both dry and wet seasons. When compared all three macrophyte treatments, a significant reduction of fecal coliform content on day 28 was shown by the CWs that contained *S. molesta* in both seasons (One-way ANOVA; $p=0.003$ in wet season and $p=0.004$ in dry season). *Salmonella* was not recorded in either raw or treated sludge in CWs. Altogether, the results suggested that CWs consist of *S. molesta* have a high potential to lower the level of fecal coliform in sewage sludge generated at CWWTP at Biyagama EPZ.

Keywords: Batch type constructed wetlands, fecal coliform, *Salvinia molesta*, sewage sludge

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Comparison of Methods for miRNA Extraction from Plasma and Peripheral Blood Mononuclear Cells

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miRNAs are small non-coding RNA that are known to regulate gene expression at transcription level. Altered expression levels of miRNAs due to the infections can serve as clinically relevant biomarkers. Reproducible and efficient recovery of miRNA from biological samples is important for their reliable quantification. Therefore, we compared the recovery of miRNAs from plasma and PBMC using several commercially available RNA isolation kits in the presence and absence of carrier molecules to enhance the yield, by quantification of hsa-mir-103-5p, hsa-let-7e and hsa-mir-30b-5p with RT-qPCR. Organic extraction and precipitation of total RNA with or without the addition of tRNA from brewer's yeast or glycogen as carrier molecules, mirVana microRNA isolation kit (Applied Biosciences), and miRNeasy Serum/Plasma Kit (Qiagen) with or without tRNA were evaluated for RNA recovery from plasma. mirVana kit and miRNeasy kit were also evaluated for RNA recovery from PBMC. RNA isolations were performed from either plasma or PBMC isolated from whole blood collected from healthy volunteers with informed consent. Total RNA was used for subsequent 3' polyadenylation of the miRNA followed by cDNA synthesis. Presence of target miRNAs in plasma and PBMC were confirmed by RT-qPCR using target specific primers. Primer specificity was confirmed using NCBI blastn suite. All three miRNA targets were detectable in PBMC using the two commercial kits, without the addition of a carrier molecule. PBMC samples processed with miRNeasy extraction kits showed earlier target amplification due to concentration of total RNA in smaller elution volumes compared to the mirVana extraction method. Addition of low amount of carrier RNA (1 µg/mL) yielded more RNA. Adding high amount of carrier RNA (10 µg/mL) during RNA extraction with mirVana kit and organic extraction showed selective effect on RNA recovery. Using glycogen as the carrier for organic extraction also yielded higher amount of miRNA from plasma. Therefore, addition of limited amount of carrier molecules can enhance the miRNA recovery.

Keywords: microRNA extraction, PBMC, Plasma, Carrier molecule

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Addressing the Problem in Applying Recently Using Relative Humidity Equation as a Ratio of Saturation Pressures, For Closed Systems and Deriving the Correction Ratio for Closed Systems

P.S.N. De Silva¹

This article has brought to consideration a problem about the applicable situations of the recently using relative humidity equation which is in terms of saturation pressure of a system in a certain temperature and saturation pressure at dew point temperature. This equation is generally used for both open systems (space) and closed systems (fixed volumes). Though, for open systems it's hundred present theoretically correct under certain assumption, for closed systems it's not correct. Here this problem is addressed and a correction ratio has been derived to overcome the error which occurs in closed systems in the determination of relative humidity.

Keywords: Relative Humidity, Open System, Closed System, Partial Vapor Pressure, Saturation Biographical

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Physicochemical Analysis of Ground Water Quality and Soil in Ja-Ela Area in Sri Lanka

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Water pollution has become a common problem with the reduction of the availability of drinking fresh water resources. Hydrochemical parameters of groundwater and soil play a significant role in classifying and assessing the water quality. The objective of the present study is to ascertain the major ion chemistry of groundwater and soil in the Ja-Ela, Indiwita area in Sri Lanka. Water and soil samples were collected from 12 drinking water wells between 7° 04' 29" to 7° 04' 39" latitude and 79° 53' 01" to 80° 53' 04" longitude in the Ja-Ela area. Each drinking water well was analysed six times within six months for pH, specific conductance, COD, hardness, and metals (using AAS method) including Al, Fe, Mn, 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 were appeared brownish colour with an odour. The observed pH values of all the water samples were ranged from 7.0 to 8.3. Aluminium content in the water samples was not in the detectable limits ($<0.05 \text{ mg L}^{-1}$) and the maximum iron content observed was 5.3 mg L^{-1} . The maximum manganese content observed was 0.3 mg L^{-1} . Total magnesium and calcium contents were ranged from 42 to 581 as $\text{CaCO}_3 \text{ mg L}^{-1}$. The majority water type in the study area was found to be Na-bicarbonate water type. Groundwater soil samples were analysed for pH, specific conductance, cation exchange capacity organic matters, mineral phases, and metals including Al, Fe, Mn, Ca, Mg and Na. Manganese content in soil was from 1.7 to 70.5 mg kg^{-1} . Experimental data revealed that groundwater in studied area was not in the limits of WHO standards for drinking water parameters except the pH value and conductivity.

Key words: groundwater, water quality parameters, soil analysis, pH value, Ja-Ela area

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Assessment of Physicochemical Parameters of Water in Cooling Towers and Boilers: Testing and Comparisons

W.A.P.J. Premaratne^{1*} and K.L.U. Maithreepala²

Scaling and corrosion effects of cooling towers and boilers can be identified by analyzing their water quality parameters. Cooling tower mainly has a refrigeration system, providing cooling in a wide range of applications such as such as chemical processing, power plants, steel mills and some manufacturing processes. Boiler is a vessel which has an enclosed system. In boiler, water is circulated and heated, either as steam or hot water to generate power or heat. This study investigated six cooling towers and six boilers selected from various industries such as food, beverages, dairy, manufacturing industry and hotels. Each water sample was analyzed for pH, electrical conductivity (EC), total dissolved solids (TDS), alkalinity, total hardness and chloride. According to the experimental results, in cooling towers pH value fluctuated from 7.6 to 8.7. The EC value ranged from 98.8 to 1215.5 $\mu\text{S cm}^{-1}$. The TDS varied in the range of 50.5 to 793.5 mg L^{-1} . Alkalinity was detected from 18.3 to 343.6 mg L^{-1} as CaCO_3 . The value of total hardness and amount of chloride varied from 12.3 to 429.5 and 14.7 to 22.8 mg L^{-1} respectively. In boiler waters, the pH value varied from 8.7 to 11.2. The EC value was from 551.5 to 3997.8 $\mu\text{S cm}^{-1}$. The TDS value was determined from 283.5 to 2748.5 mg L^{-1} . The alkalinity varied in the range of 90.8 to 404.5 mg L^{-1} . The value of total hardness and chloride varied in the range of 23.3 to 214.5 mg L^{-1} as CaCO_3 and 9.6 to 23.5 mg L^{-1} respectively. The observed physicochemical parameters from water samples were statistically analyzed with one-way ANOVA. According to the experimental results, it was found that in most cooling towers and boilers physicochemical parameters of waters are not in the range of recommended standards values and have heavy corrosion and scaling effect. These effects can be minimized by correct chemical adjustment for the water quality parameters.

Keywords: cooling towers, boilers, corrosion, scaling effect, water quality

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Cluster-based Transportation Optimization – A Case Study from Pharmaceutical Supply Chains (PSC)

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Transportation planning attempts to allocate fixed logistics capacity in the best possible way, for particular business requirements. This study focuses on the pharmaceutical supply chains, as optimization of medicine distribution routes has become an urgent issue that needs to be solved. The cost components of many distribution and transportation systems represent the routing and scheduling of vehicles, but there are only a few optimization approaches that have been introduced to effectively solve Vehicle Routing Problem (VRP). Therefore, this study presents a simulation based solution approach for transportation optimization, in order to minimize the cost, based on the pre-identified *pharmaceutical product clusters*. The simulation models are developed using the SupplyChainGuru[®] modelling and simulation platform, where vehicle routing models are developed to simulate the inherent features of the product families using test cases from the literature and the benchmark instances listed on the repository of CVRPLib. The study proposes and models five product characteristic-based clusters namely, time sensitive pharmaceuticals, hazardous pharmaceuticals, hybrid pharmaceuticals, condition constrained pharmaceuticals (conditions such as pressure/temperature, etc.), and general pharmaceuticals. The baseline VRP model is compared with the cluster specific VRP models developed for each product cluster. The results of the study depict that the total transportation cost minimizes as the products are routed with respect to the inherent product clusters, than the cost of routing without considering cluster-specific characteristics. The maximum percentage cost reduction is for the general/condition constrained cluster (64.04%), whereas the minimum is for the time sensitive product cluster (0.59%). This product clustering approach of transportation optimization could be utilized dynamically to provide efficient delivery of products to the consumers, and could be adopted in related industrial supply chains.

Keywords: Pharmaceutical Industry, Transportation Optimization, Vehicle Routing Problem

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Green Synthesis of TiO₂ Nanoparticles: A Cost Effective Approach

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Titanium dioxide (TiO₂) nanoparticles (NPs) are very useful for many purposes due to their unique physical and chemical properties. Biological synthesis of TiO₂ NPs is poorly understood compared to chemical and physical synthesis methods. The present investigation was undertaken to synthesize TiO₂ NPs using Baker's Yeast by a low-cost and sustainable process. For yeast mediated TiO₂ NP synthesis, yeast was cultured in sterile filtered 5% (w/v) glucose solution and incubated for 24 h. After that, TiCl₃ was added slowly until a clear purple solution observed. Then the solution was allowed to stand at room temperature under dark conditions for three days. The solution was centrifuged and the precipitate was washed several times with sterile distilled water, dried at room temperature and oven-dried at heating periods of 250, 350, 450, 550, 650 and 750 °C for 2 h. Characterization of synthesized TiO₂ NPs was performed using X-ray diffraction (XRD), Transmission Electron Microscopy (TEM) and Scanning Electron Microscopy (SEM). Spherical TiO₂ NPs were observed with a large amount of thin TiO₂ lamellas. Lamellas were consisted of a large number of small TiO₂ NPs. XRD pattern of the NPs obtained by using yeast template was assigned to be pure anatase TiO₂ according to characteristic peak positions at 25.303 (1,0,1), 37.78 (1,0,3), 48.03 (2,0,0), 54.45 (1,0,5), 62.80 (2,1,3), 70.34 (2,2,0), 74.91(1,0,7) and 82.81 (3,0,3) degrees. The most predominant orientation was the (1,0,1) plane as the highest intensity was observed at 25.303. The particle size distribution was 3.6 – 12.0 nm with a mean particle size of 6.7 ± 2.2 nm as shown in TEM imaging. In this study, TiO₂ NPs were synthesized with TiCl₃ as the precursor salt, in an eco-friendly manner. The increased temperature induced crystallinity. Anatase phase TiO₂ NPs get converted into rutile phase within 600-700 °C range. The biosynthesized anatase TiO₂ NPs were thermally stable. Yeast cells were used as a biotemplate that can facilitate Ti³⁺ adsorption followed by nucleation. The NPs were smaller with a narrow size distribution. The results suggest that Yeast mediated TiO₂ NP synthesis is a renewable and eco-friendly alternative to chemical synthesis.

Keywords: TiO₂, anatase, TEM, SEM, lamella

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Assessments of Drinking Water Quality and Water Treatment Process in Kalatuwawa Reservoir in Sri Lanka

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Kalatuwawa is one of the major water treatment plants which supplies water to Colombo city and its sub-urban. Raw and treated water samples were collected from the Kalatuwawa water treatment plant located at 6° 85' latitude and 80° 18' longitude. Both raw and treated water samples were analyzed ninety times within six months (15 days per months) from July to December 2016 for pH, turbidity, conductivity, color, hardness, alkalinity, aluminum, iron, manganese and ammonia. According to the experimental results, pH was in the range of 6.5-8.5 in the treated water. The conductivity values ranged from 20.5 to 34.5 $\mu\text{S cm}^{-1}$ in raw water and it was from 48.5 to 74.5 $\mu\text{S cm}^{-1}$ for treated water. The hardness value range was from 5.5 to 6.5 ppm (as CaCO_3) for raw water and from 15.5 to 25.5 ppm (as CaCO_3) for treated water. Raw water and treated water alkalinities were 7.0-8.5 ppm (as CaCO_3) and 13.0-19.5 ppm (as CaCO_3) respectively. Aluminum concentration in raw water was 0.02-0.05 ppm and it was 0.1-0.2 ppm in treated water. Ammonia concentration in raw water in Kalatuwawa varied from 0.02 to 0.09 ppm and the maximum value in treated water was 0.01 ppm. Iron concentration in raw water was 0.5-2.0 ppm and it was 0.05-0.07 ppm in treated water. Average color of the raw water was detected as 39-83 Pt/Co units and after treatment process average color indicated as zero value Pt/Co units. Average turbidity value was from 0.2 to 2.5 NTU for treated water. Experimental data revealed that treated water from Kalatuwawa reservoir is in the limits of World Health Organization (WHO) standards for drinking water parameters indicating efficient, effective and productive water treatment process.

Keywords: Kalatuwawa reservoir, water quality, water treatment, sand filters, pH value

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Assessment of Heavy Metal Contamination in Negombo Lagoon and Achchankulam Estuary in Mannar District

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Coastal water bodies such as lagoons and estuaries receive various types of pollutants due to anthropogenic influences resulted from rapid economic growth and urbanization. During the last decades, heavy metal contamination in aquatic systems has become one of the major problems due to its toxicity, durability and special depositional properties. Therefore, main objective was to study the concentrations of heavy metals to understand the levels of contamination in the water bodies of lagoon and estuaries situated in urbanized and industrialized areas of Sri Lanka. As such selected study sites were Negombo lagoon situated in Gampaha district and Achchankulam estuary situated in Mannar district. Water samples were collected in the wet season of 2015. The elemental concentrations of V, Mn, Fe, Cr, Co, Ni, Cu, Zn, As, Cd and Pb were measured in the 32 samples collected from Negombo lagoon and 10 samples from Achchankulam estuary using ICP-MS technique. In-situ measurements for the physico-chemical parameters of pH, conductivity, salinity and TDS were measured using a portable meter. The averaged metal concentrations obtained for 2 study sites were compared. All most all were remarkably high in the Achchankulam estuary except the V, Mn and Cu. The averaged Co, Ni and Zn showed 50% higher concentrations in Achchankulam than the Negombo. The As and Pb averaged concentrations were 75% higher and averaged Cd concentration was significantly higher as 216% in the estuary than the lagoon. The assessed Cr concentrations in both sites have exceeded the threshold level, 50.00 ppb; according to the proposed Ambient water quality standards for inland waters (Central Environmental Authority, 2001). Furthermore, this assessment showed that the averaged Cd concentration in the Achchankulam estuary extremely exceeded the threshold level, 5.00 ppb. The fresh water inputs of the lagoon is received from Attanagalu Oya and industrial zone in Ekala while estuary is receiving that from the second longest Malwathu Oya, which passes through 164 km of the agricultural farming lands to reach the coast of Mannar from Anuradhapura. So it may be possible that high Cd, As and Pb levels in the estuary may be a consequence of the higher utilization of fertilizer and agrochemicals which contain heavy metals as impurities, than other areas in Sri Lanka.

Keywords: Heavy metals, ICP-MS, contaminations, aquatic systems, lagoon and estuaries

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Analysis of Water and Sediment in Attanagalu Oya in Sri Lanka: Pollution Levels and Effects

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The Attanagalu Oya plays a major role in national water supply since it contains four major national water supply and drainage board intakes. This study intends to investigate the water quality variation and pollution level in Attanagalu Oya in Gampaha municipal council area. Sampling was conducted for a period of six months from November 2016 to April 2017 at nine locations situated between 7° 05' 33.8" to 7° 05' 53.1" N latitude and 79° 58' 15.6" to 79° 59' 32.5" E longitude along the main river. Both water and sediment samples in the river were collected and tested for physical and chemical parameters. Electrical conductivity (EC), pH, titratable acidity, total hardness, chemical oxygen demand (COD), and metal ions content (Fe, Pb, Cd, Ni, Mn, Cu) were analyzed in water samples. EC, pH, organic matter content and soil texture were analyzed in sediment samples. Experimental results were ascertained to find out the quality and pollution level of water and sediment by comparing with the standards levels given by the Central Environmental Authority (CEA) in Sri Lanka and World Health Organization (WHO) guidelines. According to the experimental results, average pH values of water in the river was from 7.1 to 7.6 and did not exceed the proposed ambient water quality standards for fish and aquatic life. EC values ranged from 81.9 to 91.7 $\mu\text{S}/\text{cm}$ and conductivity shows a drastic increment due to dry season. Titratable acidity, total hardness and metal ions content in water samples were not in the limits of CEA and WHO standards for drinking water parameters. COD values of water samples exceeded the maximum CEA standards during the sampling period. Sediment analysis indicated that physical and chemical parameters are not in the limits of CEA standards. Therefore, this study shows that the river is polluted and the effects being significant in the urban areas.

Key words: Attanagalu Oya, water pollution, sediment analysis, pH, conductivity

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Smart White Cane

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Blindness or visual impairment affects many people around the world. There are nearly 14 % visual disables in Sri Lanka. Blind people use white canes to identify obstacles by moving the cane. Over the years, blind people have had different reasons for using canes. The modern white cane, as we know it, did not come in to existence until World War I. There is much debate surrounding which country developed the white cane first. Along with the development of useful canes and proper techniques came laws to allow blind people equal access to public streets and buildings. The research focused to improve the facilities in existing white cane with minimal changes of the original white cane. Ultrasonic sensors measure the distance of target objects or materials through the air using ‘non-contact’ pulse echo technology. In the pulse echo method, a burst of pulses is sent through the transmission medium and is reflected by an object kept at a specified distance. The time taken for the pulse to propagate from the transmitter to receiver is proportional to the distance of object. The amplitude of the received signal gets significantly attenuated and is a function of nature of the medium and the distance between the transmitter and target. By recording the elapsed time between the sound wave being generated and the sound wave bouncing back, it is possible to calculate the distance between the sonar sensor and the object. A development board placed in the cane is powered by a 9V battery with three ultrasonic sensors for the front, right and left sides. The front sensor sensitivity is adjusted as 30 cm so that when the obstacle is within less than 30 cm distance, a unique vibration is given to the user’s handle through the cloth covering the cloth. Left and right side sensitivities are adjusted to 25 cm. Therefore, when the obstacle is in the tracking range, the Cane provides different, unique vibrations to the user. Different vibration frequencies are used in this device to identify the direction of the obstacle. If the obstacles are in the front side, the vibration frequency is high while other two sides give different vibration than the front side. User required to short time training before using the cane. We have to give instructions to the user before they start to use the smart white cane as they do not know how to identify vibration differences and guide them to keep it with correct angle.

Keywords: white cane, blind people, ultrasonic sensor

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Low Cost Method for Prototyping Printed Circuit Boards

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Printed Circuit Boards (PCBs) are very commonly used in almost all of the electronic applications, due to ease of use. There are several modern methods of transferring circuit wiring diagrams to circuit board. Many of these methods are good for only producing large number of PCBs because making one or two PCB is very expensive. However, in an electronic research laboratory needed for producing various type of prototype boards is much needed. There are several difficulties in fulfilling this need; time to produce, cost of production, difficulty to produce large and complicated PCBs. The PCB drawing machine is designed to overcome these difficulties in prototyping PCBs for electronic laboratory use.

The three dimensional axis of the designed machine is controlled by three independent stepper motors. A drawing pen holder is attached to the z-axis control and any permanent marker pen can be attached to the holder. The accuracy of the z-axis is 0.1 mm. Initially, the user designed circuit diagram (drawing) should be loaded to the computer which is connected to the drawing machine. The computer reads the drawing and replicate it on the copper board using the permanent marker pen. The total area of the x-y plane is 300mm x 200 mm. The required software for this operation is a development of an open source, which can send G-code (RS-274) protocol commands to the device. Generally, RS-274 or G-code is known as numerical control (NC) programming language. This machine uses both computer numerical control (CNC) technique and CAD software to complete the task.

The machine could also be used to remove the unwanted copper areas of a circuit board by connecting special carving bits to the machine instead of the pen. This method is much faster than the previous drawing method to replicate circuit to the copper board but more costly due to rapid wear of the milling bits. Finally, the designed drawing machine is able to draw 300 x 200 mm² size circuit layouts with 0.1 mm line separations.

Keywords: Printed Circuit Board, PCB Prototyping.

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Analysis of Photo - degradation Behavior of Poly Vinyl Chloride Based Products

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Polymers are organic materials composed of large molecules and made of many repeating units. Polymers are widely used in industrial applications today. Polyvinyl chloride (PVC) is a type of thermoplastic which is used in various industries all over the world today. It exhibits the highest sensitivity towards UV radiation when exposed to natural weathering. PVC material deteriorates its properties with time under UV environment. The effect of UV rays on the behaviour of PVC is methodically investigated to obtain a better understanding and control the degradation process especially in the outdoor applications. The objective of this research is to analyse the photodegradation of PVC based products by varying the UV exposure time.

Commercially available 63 mm uPVC pipes were selected for this analysis. Initially, original tensile strength, percentage elongation, hardness and water absorption properties were measured. After that, the prepared samples were subjected to the UV exposure test under the standard conditions. Seven set of samples were removed from the UV chamber at different time intervals (after 24 hours, 48 hours, 72 hours, 96 hours, 120 hours, 144 hours and 168 hours). Tensile strength, percentage elongation, hardness, water absorption properties and visual inspection tests were performed after the UV treatment. Obtained properties were compared with the properties of original (reference) set of samples. Experiment results showed that gradual slightly reduction of tensile strength, percentage elongation and hardness of samples with increase of UV exposed time. There were no significant color changes observed after the UV exposure test for all samples. 168 hours UV treated samples showed the maximum water absorption (0.03%). Original samples showed the hardness of 81.6 Shore D. Percent hardness property retention after 168 hours exposure to UV was 97.2%. Percent property retention for tensile strength and percentage elongation after 168 hours exposure to UV showed as 97% and 96.2% respectively. According to the experimental results, it can be concluded that the tested samples did not show significant property variation after the photodegradation. Therefore, these products are in safe condition to use for required applications.

Keywords: Photo degradation, UV, Hardness, Tensile strength

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Nutritional Effect of Consumption of Domestic and Commercially Available Coconut Milk Preparations in Wistar Rats

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The use of both domestic coconut milk (CM) preparations and commercially available CM preparations in cooking has become popular. The present study involves evaluating *In vivo* effect of domestic CM prepared by blending (BCM), commercially available powdered CM (PCM) and liquid CM (LCM) on serum lipid profiles and serum antioxidant capacity using Wistar rats. Seven weeks old male Wistar rats were randomly assigned into treatment groups. Control group was fed with a semisynthetic diet recommended by WHO. Second, third and fourth groups were fed with semi synthetic diet which contains 12 mL BCM, PCM or LCM per kg of feed respectively. Blood was drawn on day before feeding experimental diets (Day 0), 30 days, 90 days, 120 days and 150 days after feeding experimental diets. Serum total cholesterol (TC), high density lipoprotein (HDL) and triglycerides (TG) were analyzed using a test kit. Low density lipoprotein (LDL) was determined using Friedewald equation. Antioxidant activity of serum was determined by ABTS assay and DPPH radical scavenging assay. TC levels of all groups were significantly ($p < 0.05$) increased after 150 days of feeding compared to their day 0 levels. TC levels (mg/dL) of rats fed with BCM (80 ± 4), PCM (80 ± 5) and LCM (81 ± 3) were similar to control group (77 ± 7). However, rats fed with LCM showed a statistically significant ($p < 0.05$) increase in TC compared to control group. Although, TG levels of CM diet groups indicated significant ($p < 0.05$) increase on day 150 compared to their day 0 levels, these levels were similar to that of control group. Both HDL and LDL levels of CM diet groups remained same compared to control group at day 150. All CM diet groups showed a significantly ($p < 0.05$) increased activity on day 150 compared to their day 0 levels. CM fat contains nearly 90 % saturated fat. However, majority of the saturated fat in CM fats composed of short and medium chain fatty acids, which are beneficial to health. As such, adding CM to diet did not affect average levels of serum TC, LDL and TG of Wistar rats suggesting that none of the CM preparations under investigation contribute to detrimental changes in lipid profiles. All CM preparations, on the other hand, appear to increase serum antioxidant activity which may contribute in retarding oxidative damage to biomolecules. Financial assistance from National Research Council (12-012) and University Research Grant (RP/03/02/06/05/2015) are acknowledged.

Keywords: Antioxidant activity, Coconut milk, Lipid profile, Serum, Wistar rats

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MATLAB Based Software Tool for Grain Classification and Their Quality Identification

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At present, the field of agriculture is the most prevalent and enduring industry in the world. Among the existing food crops, grain varieties have attracted more attention of farmers since they play a major role in providing daily nutritional rations of human beings. Hence, it is important to develop accurate, efficient and cost effective methodology for classification and identification of grain varieties in order to yield high quality products while boosting the profit of farmers. In this study, an attempt was made to develop a software tool based on MATLAB by using the techniques of image processing to classify grain varieties namely; green gram and rice grains into their sub varieties and identify foreign particles present and the percentage of broken grains in a given sample. The decisions in classification and identification of grains were taken based on their different morphological features extracted based on the still images acquired using a digital camera. The images acquired were initially processed through several image pre-processing steps namely; RGB to gray conversion, gray to binary conversion, noise filtering and image erosion. The resulting binary images were then labeled and segmented based on the similarities that exist and the labels given. Subsequently, the features (area, perimeter, centroid, major axis length and minor axis length) of the segmented images were extracted and system decisions in classification of grain varieties and identification of the foreign particles & the percentage of broken grains were performed based on the features extracted with 95 % and 97 % accuracies respectively utilizing 35 training sets and 15 testing sets for each category. The subsequent processing steps were employed to convert numerical values into string values and the final results were displayed and readout loud to enhance the user friendliness of the software tool developed. The graphical user interface of the software tool was also based on the MATLAB. Furthermore, the whole process took a maximum of 5s execution time for one trail of grain classification or quality identification.

Keywords: Grain, Image processing, MATLAB, Classification, Quality identification

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Significance of Fish in Culture of *Veddah*; The Indigenous People of Sri Lanka

Short running title; FISH IN VEDDAH CULTURE

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Archaeological excavations have disclosed the remains of nine species of freshwater fish from rock shelter sediments that confirms the consumption of fish by prehistoric man in Sri Lanka 40,000 years before now. The modern-day descendants of those earliest inhabitants or hunter-gatherers are called as ‘village veddah’ where they live in the villagers with modern infrastructure facilities such as electricity, and are limited to certain areas of the Island. The present study was carried out to obtain the ichthyologic knowledge possessed by the modern village veddah living in Rathugala and Dambana villages in the Uva Province in Sri Lanka. During an annual circle around each full moon day for 10 consecutive poya days, the research team spent 2-3 days in the Rathugala forest, observing the Village Veddha’s life style and gathering interpretations from them, from January 2010 to March 2011. Two of the veddahs; the chieftain of Rathugala village and his assistant contributed to the study. Fishing were done in two different seasons; in late June while pools are still running and connected to each other and late July, when pools are isolated. Ichthyo-toxic plant materials were used in fishing in pools while a long knife (18 inches) was used in fish cutting at the margins of wading streams. The fish caught were identified, counted and measured for their total lengths and preparation for cooking was observed. Nine species of plants are known to use for stupefying fish in pools by the Veddhas’, out of them four species were used in this study. Pools which are not isolated are not suitable for fishing according to the Veddah and therefore fishing is done only in isolated pools. During the study, total of 19 different fish species were identified and 15 vernacular names were recorded. Fishing with ichthyo-toxic plants as performed by the Veddah may not be considered as a detrimental act. Veddah’s fishing season is aligning together with drying up of the river bed where actual fishing is done at the onset of the splitting of the fish assemblage due to discontinuation of the water flow to the pool. It is disclosed that the fish who withstood the ichthyotoxicity remain till the next rain and breed and proliferate.

Keywords: ichthyologic plants, riverine habitats, traditional fishing, Veddah

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Pressured Water Extraction and Solvent Extraction of *Cinnamomum zeylanicum* (L.) Bark and Evaluation of Anti-Diabetic Properties

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Pressured water extraction (PWE) is an environmentally friendly technique that has been used to extract anti-diabetic substances than solvent extraction. In the present study, Ceylon Cinnamon(CC, *Cinnamomum zeylanicum*) was selected as a natural source for anti-diabetic agent. The purpose of this study was to determine the inhibitory potential of α -amylase and α -glucosidase by CC bark extracts and to compare the efficiency of the extract with anti-diabetic properties from CC by PWE and solvent extraction. The dried bark of CC was powdered and extracted using pressured water (PW, 0.098 MPa), microwave digestion (MD), steam distillation (SD) and soxhlet extraction (SE) with 75% ethanol. The resultant extract from SE was fractionated with hexane. Each extract was tested for the total phenolic content (TPC) and content of proanthocyanidin (PC) using Folin-Ciocalteu method and vanillin assay respectively. IC₅₀ values of α -amylase and α -glucosidase inhibitions by the extracts were determined. Acarbose was used as the positive control.

Table 1: TPC, PC and IC₅₀ values of α -amylase and α -glucosidase inhibitions

As per the results in table 1 CC water extract obtained by pressured water and aqueous layer from SE have high

Type of extraction		IC ₅₀ for α -amylase (μ g/mL)	IC ₅₀ for α -glucosidase (μ g/mL)	PC mg of catechin equivalent/ g extract	TPC (mg gallic acid equivalent/g extract)
SE	Hexane layer	201.14 \pm 7.77	606.237 \pm 239.51	7.34 \pm 0.01	0.90 \pm 0.02
	Aqueous layer	109.35 \pm 6.52	59.70 \pm 2.80	11.77 \pm 0.16	3.90 \pm 0.04
PWE		87.74 \pm 12	132.103 \pm 8.73	7.39 \pm 0.06	2.90 \pm 0.15
SD		119.51 \pm 8.35	296.47 \pm 42.87	5.65 \pm 0.01	0.68 \pm 0.02
MD		111.31 \pm 4.12	158.65 \pm 10.32	6.14 \pm 0.01	1.73 \pm 0.03

anti-diabetic properties compared to the other extractions. IC₅₀ values of α -amylase and α -glucosidase inhibitions by the acarbose were 95.06 \pm 6.84 and 172.52 \pm 12.06 respectively.

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Keywords: α -amylase, *Cinnamomum zeylanicum* (L.), α -glucosidase, pressured water extraction, solvent extraction.

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Butchering Practices of *Veddah*; the Indigenous People of Sri Lanka

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The *Veddah* are an ethnic group of people living in Sri Lanka whose population is limited to around 5000 people according to cense carried out in 2011. They live in several villagers adjacent to their original homeland forests. Seligman brothers have reported in 1911 that *Veddah* have used the arrow head for butchering. In this study state of art of butchering of the modern day *Veddah* was studied. The study was done in Rathugala in Batticaloa District where a *Veddah* community lives in Rathugala village adjacent to their original homeland; Nilgala forest. A monthly field visits were done to Rathugala village during 2010 and 2011. Totally 10 field visits were made and 45 days and nights were spent in the forest with *Veddah* ascertaining the practices related to the hunting. The interviews were done while in the forest, figures and illustrations of the muscular anatomy and skeletal anatomy of common animals were shown initially to familiarise and to acclimatise *Veddah* for a long run of study. Observations were made on how a monkey was butchered to produces 13 major meat portions and 8 byproducts. Each major meat portions and byproducts have terminologies in their language. Obtaining primal cuts are exactly similar to the modern method of butchering. The *Veddah* are still skillful butchers. One specific tool with a sharpen edge and a point is sufficient for successful butchering. During prehistoric period people have used similar methods in butchering. The findings are useful in re-creating prehistoric life style of people. Purpose driven ethnographic studies help gather information, deepen the understanding about the indigenous groups like *Veddah*, increase the weight of the cultural identity and help understand the lifestyle of prehistoric man.

Keywords:Rathugala, prehistoric man, primal meat cuts, butchering by products

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A Simulation-based Modelling Approach for Sustainable Supply Chains through Smart Collaboration

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Modelling and simulation techniques have been identified as one of the dynamic ways to analyze and deal with stochastic facets existing in a supply chain. The focus of the study is to simulate the applications of Industry 4.0 driven smart collaboration in supply chains in driving sustainability in the apparel industry. The open source agent based behavioral modelling environment, NetLogo is utilized for the aforementioned purpose. The study assesses how information sharing, sense making, resource pooling, goal congruency, empowerment and cross functionality of a smart collaborative supply chain impact on the sustainability of the apparel supply chain. The model outlines how levels of integration of each of the characteristics affects the sustainability of the supply chain. A qualitative outcome was achieved through a mixture of qualitative and quantitative survey on the carbon footprint of the agents of apparel supply chain with the variation of level of collaborative characteristics. The results were included in to the simulated environment to identify how different levels of supply chain collaboration with Industry 4.0 application impact the sustainability of the apparel industry. The scenarios clearly show that the increasing levels of Industry 4.0 applications used in supply chain collaboration results in improved sustainability performance in the apparel industry, and that the dimension of communication, coordination and cooperation contribute individually in driving sustainable Industry 4.0 with collaborative supply chains. Furthermore it proves that each of the three collaborative dimensions are important in striving towards a sustainable industry.

Keywords: Agent-based simulation, smart collaboration, sustainable supply chains

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Humanities

An Analytical Study of the Theory of ‘The Survival of the Fittest’ Depicted in the Short Story *Khaccar ɔ:r a:dmi*: (Mule And The Man) By Yashpal

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This paper will explore ‘The Survival of The Fittest’, which is a phrase that originated from Darwinian Evolutionary Theory as a way of describing the mechanism of natural selection, depicted in the short story *khaccar ɔ:r a:dmi*: (Mule and The Man). As a matter of fact, we human beings have lost our natural survival instincts because of man-made baseless religious beliefs, and Yashpal is a well-known Hindi writer, who raised his voice through short stories against the above mentioned social issue. He has used logical incidents, which are based on scientific theories in his short stories to abolish such outdated beliefs, which have been generated as a result of capitalism, idealism, exploitation and convention. Thus he has proved the baselessness of many outdated thoughts, caused to obstacle the natural life circle. The short story *khaccar ɔ:r a:dmi*: (Mule and The Man) has been written in a scientific context. In this short story, Yashpal has proved that the natural life circle of the human being can be damaged by religious myths. The eagerness towards Materialism and Marxism caused Yashpal to explore effective solutions through literature for such grave problems among mankind. In the process of writing he never included utopia of revisionism as solutions of social problems. In the short story *khaccar ɔ:r a:dmi*: (Mule and The Man), Yashpal has made an effort to explain to society, that religious beliefs, which are against nature are based on economic inequality and capitalism. Moreover, by presenting incidents regarding ‘The Survival of The Fittest’, he has proved that if someone is going against nature, the meaninglessness of baseless beliefs will be shown by nature itself. This paper makes an attempt to point out the importance of natural survival, while also drawing attention to explain the mutual relationship among literature, human life and science.

Keywords: The Survival of The Fittest, Darwinian Evolutionary Theory, Baseless religious beliefs, Marxism, Materialism

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Student Academic Performance: The Role of Motivation, Strategies, and Perceived Factors Hindering Students of Vocational Training and Education at Tertiary Level in Sri Lanka

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The nature of motivation and learning strategy is used vitally to improve student learning outcomes. This effort was made with the intention of exploring the motivational beliefs and learning strategy used by students following Vocational education in Sri Lanka belonging to different fields of study and the connection of the aforesaid beliefs with their academic performance.

Sri Lankan Vocational education sector was initiated many years ago with the intention of introducing a labour force, with skills for vocations rather than emphasizing the academic knowledge that is full of theoretical practice that does not advocate development of skills. Majority of the students who commence vocational education is identified as less self-motivated than the students who are in conventional universities of Sri Lanka. Mainly two types of motivational beliefs could be identified among them; instrumental motivation and integrative motivation. This study shows the importance of the Teacher's role on paying keen attention on motivating the students promoting their self-efficacies, always urging students to believe in their abilities to do well and the importance of having faith on them, if not it could affect their dispositions for lifelong learning and their capacities to succeed in various life situations. This was tested by careful observation of two selected samples of students while they are engaged in in class activities through means of monitoring to check how they handle the given tasks, with and without the teacher.

Student evaluation should be conducted meticulously and holistically without emphasizing the fanciness of grades or rewards as the surest way to academic success, but it must also consider other skills and talents of students. The repeated reminders of learning for individual development and the good of the society has to be constantly addressed to introduce a competent product.

Keywords: Vocational Education, Motivation, Instrumental motivation, integrative motivation.

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සියදිවි නසාගැනීම වැළැක්වීම සඳහා බෞද්ධ ප්‍රවේශයක්

D. M. ,ලක්මාලිහර්ෂිකා බණ්ඩාර¹

මෙලොව උපදින කවරෙකු වුව ද හිස් අතින් පැමිණිය ද මරණය කරපින්නා පැමිණේ. එය ලෝක ධර්මතාවයි. නමුත් මරණය අපේක්ෂාවෙන්, එය අත්පත් කරගැනීමේ දැඩි උවමනාවෙන් මෙම ක්‍රියාවේ අවසාන ප්‍රතිඵලය මරණය බව දැන දැන යමෙක් කටයුතු කරත් නම් එය සියදිවි හානි කරගැනීමට තැත් කිරීමක් වශයෙන් නිගමනය කළ හැකි ය. මෙම තත්වය වර්තමාන ලෝකයේ බොහෝ රටවල දිනෙන් දින උග්‍රවන සමාජ ගැටලුවකි. විශේෂයෙන් සියදිවි නසා ගැනීම යනු එක් සමාජ ගැටලුවක් නොව තවත් එවැනි ගැටලු රාශියක් ආරම්භ වීමට ඉවහල් වන වර්ෂා රටාවක් බව බොහෝ මනෝවිද්‍යාඥයින්ගේ මතය යි. සියදිවි නසා ගැනීම සඳහා පුද්ගලයෙකුට හේතුවන කරුණු කාණ්ඩ දෙකක් යටතේ වර්ග කළ හැකි ය. සමාජීය හේතු සහ සෞඛ්‍යමය හේතු වශයෙනි. සියදිවි නසා ගැනීම සඳහා මූලික වශයෙන් හේතුපාදක වන්නේ ගැටලුව නොව එය මානසිකව දැඩිව අල්වා ගන්නා ආකාරය බව කරුණු අධ්‍යයනයේ දී සනාථ වේ. කෙසේ නමුත් මේ සඳහා අප විසඳුම්, යෝජනා හෝ වළක්වාගැනීම සඳහා ප්‍රවේශයන් සෙවිය යුතු කාලය එළඹ ඇත. සියදිවි නසාගැනීම වැළැක්වීම සඳහා හෝ අවම කරගැනීම සඳහා බොහෝ විද්වතුන් විවිධ ක්‍රමවේද, ක්‍රියාමාර්ග, යෝජනා ඉදිරිපත් කරතිබේ. නමුත් ඒවා කෙටිකාලීන මෙන් ම යම් පාලනයක් සඳහා පමණක් සීමා වී ඇත. මෙම පර්යේෂණයේදී මෙය පර්යේෂණ ගැටලුව වශයෙන් හඳුනාගෙන තිබේ. එබැවින් බෞද්ධ දර්ශනයට අනුව සියදිවි නසාගැනීම වැළැක්වීම සඳහා ඉදිරිපත් කළ හැකි විධිමත් මෙන් ම ඉලක්කගත ප්‍රවේශයක් හඳුන්වාදීම පර්යේෂණයේ අරමුණ යි.

මනුෂ්‍යත්වයේ වටිනාකම, අගය උත්තරීතර තත්වයකට පමුණුවන බුදුදහම ජීවත්වීමේ අගය පිළිබඳ දරන ආකල්පය විමසා බැලීම අතිශය වැදගත් වේ. සියදිවි නසාගැනීම වැළැක්වීමට යෝනිසෝමනසිකාරය සහ පරතෝසෝෂය බෞද්ධ ප්‍රවේශයක් (ඊමායසිඑ 'වචරද්දපය' වශයෙන් හඳුන්වාදිය හැකි ය. යෝනිසෝමනසිකාරය යනු යථාර්තවාදී අවබෝධය වශයෙන් ද පරතෝසෝෂය යනු විමර්ශනශීලීත්වය, විමසා දැනගැනීම වශයෙන් ද සරළව මෙහි දී සඳහන් කළ හැකි ය. මේ සඳහා ත්‍රිපිටක ය මූලික කරගනිමින් වඩාත් සාර්ථක ප්‍රවේශයක් ඉදිරිපත් කිරීමට නියමිත ය. එමෙන් ම මෙම ප්‍රවේශය සමාජගත කිරීමේ ක්‍රමවේදය මෙන්ම ඒ සඳහා සංවර්ධනය කළ යුතු අනෙකුත් ක්ෂේත්‍ර පිළිබඳව මෙන් ම මෙය ක්‍රියාත්මක කිරීමේ දී ඇති අභියෝග පිළිබඳව ද සකාරණව මෙම පර්යේෂණයේ දී සාකච්ඡා කිරීමට අපේක්ෂිත ය.

ප්‍රමුඛ පද : යෝනිසෝමනසිකාරය/ පරතෝසෝෂය/ බෞද්ධ ප්‍රවේශය/ ත්‍රිපිටකය/ ධම්මපදය

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The Teachings on Abortion in Buddhism and their Relationship to the Doctrines of Medical Science (MS)

Ven.K.Sumanasara¹

Abortion is the intentional termination of a pregnancy after conception. It allows woman to put an end to their pregnancies but involves killing the undeveloped embryo or fetus. We can find some embryological teachings also in the teachings of the Buddha. In the both of *Theravāda* and *Mahāyāna* philosophical schools have discussed occasionally, the topic mentioned above and appear some advises given by the Buddha for his followers regarding to this matter. For this research, Pali Canon (*Tipiṭaka*), the Commentaries (*Aṭṭakathā*) and the academic articles are used as resources & this research is being done as a desk research. For a successful conception there should be three facts according to the *Majjhima-nikāya*. Those details are tallied with its commentary. On the other hand an important place is given to the *Yogācārabhūmiśāstra* of *Yogācāra* tradition, considering on texts which are exterior to *Theravāda*. The facts are discussed detailed in the *Vinayaṭṭhakathā*. According to those details any disastrous deed committed to the lives of the child or the mother is not accepted the Buddhism. However, the facts related to the abortion had not been discussed directly by the Buddha, but when explaining or solving disciplinary problems related to the matter the Buddha had to mention about this. Although, it is mentioned in the Canon, that there should be three points for a successful conception, it is only two according to MS. According to the theories of the MS, the early abortion is not admitted as a crime, while the later abortion is admitted. The time which is engaged with the consciousness power to the growing embryo, cannot be measured definitely. Hence, the abortion committed at anytime is not admitted by the Buddhism. In accordance with, above mentioned information, the Buddhism rejects the abortion on the base of ethics. The reasons for abortion of modern day women are; hiding the witnesses of misbehavior, protecting the feminine figure and saving the lives of women. When not delivering a healthy baby or delivering a baby, if the doctors predict, that there is a risk of mothers death, the abortion is approved by the Modern Medical Science (MMS). Though this, it is obvious that the attention has been given on abortion by the MMS, the social base.

Keywords: - Buddhism, Abortion, Medical Science

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දෘෂ්ටි විචාරය පිළිබඳ බෞද්ධ ඥාන විභාගමය විග්‍රහය අධ්‍යයනයක්
දිල්ශාන් මනෝජී රාජපක්ෂ¹

“දර්ශනය” යන සංස්කෘත නාමය √දෘශ් යන ධාතුවෙන් නිපන්නකි. දැකීම යන අරුතෙහි ලා ගැනෙන එහි අතීත කෘදන්තය “දෘෂ්ටි” යන්නයි. ඊට සාමාන්‍යාර්ථව පාලි භාෂාවේ ව්‍යවහාර වන්නේ “දස්සන” යන්නයි. “දිස” යන ධාතුවෙන් නිපන් එහි අතීත කාල කෘදන්තය “දිට්ඨි” නම් වේ. මේ අනුව දර්ශන හෙවත් දස්සන සහ දෘෂ්ටි හෙවත් දිට්ඨි යන පද අතර සමීප සබඳතාවක් පවතින බව පෙනේ. “දිට්ඨි” යන අතීත කාලාර්ථය ගෙනෙන පදය තුළින් ලෝකය හා සත්වයා පිළිබඳව කල් තියා බැසගෙන තිබෙන නිගමන ද “දස්සන” යන වර්තමාන කාලාර්ථය ගෙනෙන පදය තුළින් අනුභූතිමය ප්‍රඥාවකින් යුතාර්ථය දැකීම ද අදහස් වේ. දැකීම, කල්පනාව, සිද්ධාන්තය, න්‍යාය, දර්ශනය, අවබෝධය, සත්‍යය, ඥානය යනා දී අරුත් දස්සන හා දිට්ඨි යන පද දෙකට ම පොදු සාමාන්‍යාර්ථවාචී පර්යාය වුව ද දිට්ඨි යන්න විග්‍රහ කිරීමට පෙළ සාහිත්‍යයේ බොහෝ මූලාශ්‍රයවල යොදා තිබෙන්නේ තරමක් සෘණාත්මක අංශය නියෝජනය කිරීමටයි. ඒ බව දිට්ඨි යන පදය සඳහා ම පැන නැගී ඇති භක්තිය, ඇදහීම, වාදය, ආධ්‍යාත්මිකත්වය, විරුද්ධ මත නො ඉවසන ස්වභාවය යනා දී අරුත්වලින් පැහැදිලි වේ.

යමක් දැන ගැනීමේ අභිරුචියෙන්, දැන ගැනීම සඳහා අනුගමනය කරන ක්‍රමවේදය ඥාන විභාගය හෙවත් ඥාන මීමංසාවයි. ඥානය ලබා ගැනීම සඳහා අනුගමනය කරන ක්‍රමවේදවල පවත්නා මූලික ගැටලු ද දෘෂ්ටිග්‍රාහීවීමට බලපාන ප්‍රධාන කරුණක් වන බැවින් බෞද්ධ දෘෂ්ටි විචාරය තුළින් ඥාන මීමංසාත්මක ප්‍රවේශය හරහා ඥානය ලබාගැනීමට අනුගමනය කරන ක්‍රමයෙහි නිරවුල්, නිරවද්‍යතාව මූලික වශයෙන් ම අවධාරණය කරයි. දාර්ශනික ඉගැන්වීම්වලට අනුව අපට ඥානය ලබාගත හැකි මාර්ග හෙවත් ප්‍රවේශ දෙකක් වන අතර ඒවා නම් බුද්ධිවාදය (තර්කය හා සාම්ප්‍රදායික කරුණු තුළින් ඥානය ලබා ගැනීම) හා අනුභූතිවාදය (පංචේන්ද්‍රියන් පදනම් කරගෙන ඥානය ලබා ගැනීම) යි. එම ඥාන මාර්ග කෙරේ අන්තගාමී වීම දෘෂ්ටිගත වීමට මූලික හේතුවකි. එබැවින් බෞද්ධ උපදේශය නම් කවර ඥානයක් වුවත්, තමන්ගේ පෞද්ගලික අත්දැකීමට පාත්‍ර වන්නේ නම් පමණක් ඥානයක් ලෙස පිළිගැනීමට ඉදිරිපත් විය යුතු බවයි. ඒ බව “සයං අභිඤ්ඤා සච්ඡිකන්වා” යනුවෙන් දක්වා ඇත. මෙහි දී වැදගත් වනුයේ තමන්ගේ පෞද්ගලික සන්තෝෂණයට පාත්‍ර වීමයි. “අන්තනාව ජානෙය්‍යාථ” යනුවෙන් ද දක්වා ඇත්තේ ඒ බවයි. අනෙක් අතට ඉන්ද්‍රියානු ඥානය ලබා ගැනීමේ දී බුදුරදුන්ගේ උපදේශය වනුයේ දකින ලද හෙවත් තමාගේ දැකීමට පාත්‍ර වූ දෙය හුදෙක් දකින ලද්දක් ලෙස ම සැලකිය යුතු බවයි. දකින ලද්ද සම්බන්ධයෙන් වැදගත් වන ඇස මෙන් ම, සමස්ත පංචේන්ද්‍රියන්ට ම මෙම කරුණ අදාළ ය. දකින ලද්ද, දකින ලද්දක් ලෙස ම නොව මඤ්ඤනාවෙන් යුක්තව ආත්මවාදී පදනමින් මමත්වයෙන් අභිනන්දනය කිරීමට යාම දෘෂ්ටිවාදී වීමට හේතු විය හැකි බව බෞද්ධ අදහසයි. ඒ අනුව මෙම පර්යේෂණයේ දී අධ්‍යයනය කෙරෙන්නේ දෘෂ්ටි විචාරය පිණිස බුදුසමයේ අවධාරණය කෙරෙන ඥාන විභාගීමය ප්‍රතිචාරය වන අතර මෙම අධ්‍යයනයට මූලික වශයෙන් මුල් බුදුදහමේ මූලික සූත්‍රදේශනා හා ඒ අනුසාරයෙන් රචිත ද්විතීයික මූලාශ්‍රය පදනම් කරගැනේ.

ප්‍රමුඛ පදාඥානවිභාගය, දස්සන දිට්ඨි, නිවන, මුල්බුදුසමය,

¹ පාලි හා බෞද්ධ අධ්‍යයන පශ්චාත් උපාධි ආයතනය, කැලණිය විශ්වවිද්‍යාලය, dilshanmanojrajapaksha@gmail.com

Sri Lankan Music in Sigiri Graffiti

J. Chandana Ruwan Kumara¹

The aim of this paper is to identify the evidence of music in Sri Lanka that has been encrypted in *Sigiri Graffiti*. The graffiti on the mirror-wall in Sigiriya Rock belongs to a period ranging from 8th- 10th centuries CE, and with no doubts, they are an extant example of the social and cultural background of the period. Evidently, they were the visitors to the royal kingdom of King Kasyapa (477-495 CE) from different parts of the country, and they belonged to various strata of the contemporary society in Sri Lanka. Therefore, it can be assumed that the graffiti on the rock wall represents not only the thoughts and ideas they had of the figurines on the wall, but the melodic patterns and rhythms that regional community practiced on particular occasions. Thus, *Sigiri Graffiti* can be recognized as a cluster of such musical components of the contemporary society in Sri Lanka that may necessarily witness to the elements of authentic Sri Lankan music and provide a glimpse into the music of Sri Lankan people during a period immemorial. The unique characteristic of this music and the rhythms is the non-influential behavior from its neighbor: India, as it has always been come under discussion when it comes to Sri Lankan music. The samples and examples for the present study were selected from the *Sigiri Graffiti*, and from the texts written on the subject. The evidence and elements of the contemporary Sri Lankan music were obtained from the primary sources i.e. Mahavamsa, Culavansa and other texts, scholarly studies, and an examination of archeological information. The analysis proved that the lyrics and the rhythms embedded in *Sigiri Graffiti* are homogeneous to Sri Lankan society and the instrumenting, singing, impression of songs and dance etc. and also the prosody; the number of syllabic instants provides significance of music in Sri Lanka.

Keywords: Sigiri Graffiti, evidence of music, Sri Lankan music, contemporary music, poetry

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ටෙනිසන් පෙරේරාගේ නවකතා කෙරෙහි මායා යථාර්ථවාදයේ බලපෑම
රශිකලා ලසිකා*

1960 - 1970 අතර කාලයෙහි ලතින් ඇමෙරිකාව කේන්ද්‍ර කර ගනිමින් ජනප්‍රිය වී, පසුව විශ්ව ව්‍යාප්ත වූ සාහිත්‍ය ප්‍රවණතාවක් වශයෙන් මායා යථාර්ථවාදය (ඒටසජ් සෘජුකසිප) ප්‍රකට විය. මායාව, අද්භූතය හා ආශ්චර්යය ඔස්සේ පවතින දේශපාලන, සමාජ සහ ආර්ථික තත්වයන්හි යථාර්ථය ගැඹුරින් නිරූපණය කෙරෙන ප්‍රතිනිර්මාණ විධියක් වශයෙන් මායා යථාර්ථවාදය වඩාත් ප්‍රබල ව භාවිත වූයේ නවකතා ක්ෂේත්‍රය ආශ්‍රිත ව ය. මේ ප්‍රතිනිර්මාණ විධිය සිංහල නවකතා කලාව කෙරෙහි ද යම්තාක් දුරට බලපෑමක් ඇති කළ අතර මෙරට ඇතැම් ලේඛකයෝ එය ඇසුරු කර ගනිමින් නව අත්හදාබැලීම්වලට යොමු වූහ. නවකතාකරණයේ දී සහ කෙටිකතාකරණයේ දී විශ්ව සාහිත්‍ය ප්‍රවණතා කෙරෙහි නැඹුරු වෙමින් නව අත්හදාබැලීම්වලට යොමු වූ එවැනි ලේඛකයකු ලෙස ටෙනිසන් පෙරේරා හඳුනා ගත හැකි ය. යථාර්ථවාදයෙන් හා අධි-යථාර්ථවාදයෙන් පෝෂණය වූ ඔහුගේ ලේඛන කලාව පශ්චාත් කාලීන ව මායා යථාර්ථවාදය වෙත ද නැඹුරු විය. නවකතාකරණයේ දී ඔහු මායා යථාර්ථවාදය උපයෝගී කර ගත් ආකාරයත් එහි දී ඔහුගේ සාර්ථක-අසාර්ථක භාවයත් අධ්‍යයනය කිරීම මේ පර්යේෂණයේ අරමුණ විය. මායා යථාර්ථවාදී සංකල්පයේ බලපෑම යම් තාක් දුරකට ප්‍රකට වන ඔහුගේ 'සසරදිගන්තය' හා 'අභිරහස් ජීවිත තරණය' යන නවකතා මේ සඳහා මූලාශ්‍රය කොට ගැනිණි. මේ නවකතාවල සඳහන් මායා යථාර්ථවාදී ලක්ෂණ විද්‍යමාන වන අවස්ථා, වර්ත හා ශිල්පීය උපක්‍රම විමසීමේ දී, ටෙනිසන් පෙරේරා විශ්ව සාහිත්‍යයේ ප්‍රකට මායා යථාර්ථවාදී නවකතා බොහෝ දුරට අනුකරණය කර ඇති ආකාරය හඳුනා ගත හැකි විය. එනම් *ගාර්ජියා මාර්කෙස්ගේ 'හුදෙකලාවේ සිය වසරක්'* (ධබැ යමබාරූ ශැරි දෝදකසඵමා), *ඉසබෙල් අයියන්දේගේ 'මායාවාස'* (ඔයැ යදම් දෙ එයැචසරසඵ) හා *ගුන්තර් ග්‍රාස්ගේ 'ටින්ඩුම්'* (ඔයැ ඔසබ් අරමප) යන නවකතා ටෙනිසන් පෙරේරා සමීප ව ඇසුරු කර ඇති අන්දම තහවුරු විය. මේ කරුණු අධ්‍යයනයේ දී ටෙනිසන් පෙරේරා නිර්මාණකරණය සඳහා මායා යථාර්ථවාදය උපයෝගී කරගත් අන්දම සාර්ථක නොවූ බව පැහැදිලි විය. ඔහු එය හුදෙක් ශිල්පීය උපක්‍රමයක් වශයෙන් භාවිත කර ඇති සේ ම මායාව ඇසුරින් යථාර්ථ නිරූපණයට පිවිසෙන්නේ ද නැත. එසේ ම ඔහු අනුකරණාත්මක හා ආයාසකර ලෙස මායා යථාර්ථවාදී ලක්ෂණ සිය නවකතා සඳහා ඇතුළත් කර ඇති බව ද මේ අධ්‍යයනයේ දී පැහැදිලි විය. මෙහි දී ප්‍රාථමික හා ද්විතීයික මූලාශ්‍රය ඔස්සේ තුලනාත්මක ලෙස මේ කරුණු නිදසුන් සහිතව විවරණය කෙරේ.

ප්‍රමුඛ පද : මායා යථාර්ථවාදය, යථාර්ථ නිරූපණය, ටෙනිසන් පෙරේරාගේ නවකතා, විශ්ව සාහිත්‍ය ප්‍රවණතා, අනුකරණය

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A Comparative Study of Indefinite Pronouns in Hindi and Sinhala Noun Phrases

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Syntax can be identified as a broader academic area in linguistics. According to syntactic theory, a sentence can be divided into two main parts, as noun phrase and verb phrase. Sinhala and Hindi Languages are two languages that have been originated from Sanskrit which belongs to Indo-Aryan languages. Indefinite pronouns are common category of these two languages, which can be considered as one of different types of grammar contained in noun phrase. Hence, the primary objective of this research is to do a comparative study through identifying the similarities and differences of the indefinite pronouns used in these languages. Up to now, no research has been done in relation to this topic. Therefore, this research is timely and important in which the qualitative method is used. The various dissimilar characteristics are shown when they are used. These dissimilar characteristics create problematic conditions for the students who study Hindi and Sinhala noun phrases. In fact, a proper understanding of these problems helps to improve language competency.

Keywords: Syntax, Noun Phrase, Verb Phrase, Indefinite pronouns, Comparative study

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**මහාසමයසූත්‍රයේ ගාන්ධර්ව දේව නාමවල විවිධතා සහ ව්‍යාකූලතා:
අට්ඨකථා හා සමයාන්තර මූලාශ්‍රය ඇසුරින් සිදුවන ශාස්ත්‍රීය අධ්‍යයනයක්
සූජ්‍ය ලේල්වල අරියධම්ම හිමි¹**

දීඝනිකායේ මහාසමයසූත්‍රයේ විස්තෘත දේවනාමාවලියක් අන්තර්ගත වේ. එම නාම අතරින් බොහෝවක් වෙනත් බෞද්ධ නිකාය මූලාශ්‍රයවල මෙන් ම සමයාන්තර කෘතීන්හි ද වාර්තා වේ. මේ අතර ගාන්ධර්ව නම් දේව කොට්ඨාසය ද ඇතුළත් වේ. ගාන්ධර්වයින් යනු දෙවියන්ගේ සංගීතකරුවන් ය (දී.නි. 2:398). එසේ වුව ද දෙවියන් අතර පහත් ම දේවකොට්ඨාසයක් වශයෙන් ද ඔවුහු ගැණෙනි (දී.නි. 2:322). මහාසමයසූත්‍රයෙහි ඇතුළත් මෙම පිරිසට පනාද, ඔපමඤ්ඤ, මාතලී, චිත්තසෙන, නළරාජ, ජනෙසහ, පඤ්චසිඛ, තිම්බරු සහ සූරියවච්චසා අයත් වන අතර මේ සියල්ලෝ ම

ගන්ධබ්බකායකි යෝ ය (දී.නි.අ. 2:490). කෙසේ වුව ද ඇතැම් ත්‍රිපිටක හා අට්ඨකථා මල ශ්‍රයන්හ විවිධ අයුරින් මෙම පිරිස පිළිබඳ සාධක ඇතුළත් ව ඇත. දීඝනිකායේ ආටානාටියසූත්‍රය පඤ්චසිඛ, තිම්බරු

සහ සූරියවච්චසා හැර අනෙක් ගාන්ධර්වයන්, යක්ෂ, මහායක්ෂ, සෙනාපති, මහාසෙනාපති යන පදවලින් විශේෂණය කරයි (දී.නි. 3. 328-330). පනාද ඇතුළු පිරිස ගන්ධබ්බකායකි යින් යැයි දීඝනිකාය අටුවාව සඳහන් කළ ද ගාන්ධර්ව නාමයන් වෙන් වෙන් වශයෙන් දැක්වීමේ දී දෙවපුත්ත, දෙවරාජ, ගන්ධබ්බරාජ යන විශේෂ අභිධානයන් භාවිත කරයි. ඒ අනුව, නළරාජ, ජනෙසහ සහ පඤ්චසිඛ දිව්‍යපුත්‍රයන් වන අතර තිම්බරු ගන්ධබ්බ දේවරාජයෙකි. පොදුවේ මේ සියල්ලෝ ම ගන්ධබ්බරාජයෝ ය. මාතලී සඳහා දෙවසූත, දෙවසාරථී, සඞ්ගාහක යන විශේෂණ ත්‍රිපිටකයෙහි භාවිත වී ඇත. අට්ඨකථා විවරණයට අනුව චිත්තසෙන නාමය, එනමින් ප්‍රකට ගන්ධබ්බකායකි එක් දෙවියෙකුගේ නො ව චිත්ත සහ සෙන යන ගන්ධබ්බකායකි දෙවියන් දෙදෙනෙකුගේ නාමයන් ය. එම විවරණයට උග්‍රපුත්‍රයක් දක්වන දීඝනිකායටීකාව, චිත්තසෙන යන්න ගන්ධබ්බ දේවනාම තුනක් වශයෙන් හඳුනා ගනියි (දී.නි.ටී. 458). අටුවාවට අනුව නළො රාජා - නළ දෙවරජ ද එනමින් ප්‍රකට නළකාර දිව්‍යපුත්‍රයෙකු වන අතර ජනෙසහ, ජනවසහ යන අපර නාමයෙන් ද ඔහු හැඳින් වේ. ජනවසහ නම් යක්ෂයෙකු පිළිබඳ ව දීඝනිකායෙහි ජනවසහසූත්‍රයෙහි සඳහන් වෙයි. මේ ආකාරයෙන් ත්‍රිපිටක සාධකයන්හි මෙන් ම අට්ඨකථා මලාශ්‍රයන්හි ද ගාන්ධර්ව දේව නාම සම්බන්ධයෙන් පවත්නා විවිධ හා ව්‍යාකූල තොරතුරු, ප්‍රමාණවත් ශාස්ත්‍රීය අධ්‍යයනයක් මගින් නිරාකරණය කළ යතු ව ඇත. මෙම අධ්‍යයනය සඳහා මහාසමයසූත්‍රය, ආටානාටියසූත්‍රය ඇතුළු වෙනත් ථෙරවාදී මලාශ්‍රයන් ද මහාමායුර්විද්‍යාරාඤ්ඤසූත්‍රය, සුවර්ණභාසොත්තමසූත්‍රය, මහාසාහසුප්‍රමර්දනීසූත්‍රය වැනි මහායාන කෘතීන් ද භාවිත කෙරේ. මීට අමතර ව ගාන්ධර්ව නාමයන් ඇතුළත් වේද, උපනිෂද්, මහාකාව්‍ය ආදී සංසක්ෂක මල ශ්‍රයන් ද අර්ථ සුවනය සඳහා ශබ්දකල්පද්‍රැම, වාචස්පතිය වැනි කෝෂ ග්‍රන්ථයන් ද යථෝචිත ව පරිශීලනය කෙරේ.

පඹබ්‍රාහ් පද්:ගන්ධබ්බ, යක්ඛ, දෙවයොනි, දෙවපුත්ත, දෙවරාජ.

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Practicality of Interpretation Practices to Enhance the Skills of Undergraduates Who Learn Hindi in Sri Lanka

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Interpretation can be identified as an oral or verbal form of translation. An interpreter generally needs to have an exhaustive grasp of both source and target languages, excellent verbal communication skills, satisfactory knowledge about the contexts on which the conversations are based on, good interpersonal skills and a very high level of concentration. Interpretation can be simultaneous as well as consecutive and also there are moral characteristics needed for the profession. Undergraduates, being the learners of knowledge and practice to become professionals later, have to enhance their soft skills as well as their knowledge. Education of Hindi as a foreign language in university level has offered academic knowledge to proceed in classical studies as well as to maintain Indo-Sri Lanka cultural, political and economic relations. The objective of this research is to assess the practicality of interpretation practices to enhance knowledge and soft skills of undergraduates, focusing on the improvement of lexical usage in fields where interpretation of Hindi is needed in Sri Lanka. This research was done based on the responses of a sample of B. A. (Special) undergraduates of Hindi, prior to the theoretical and practical lessons of interpretation and later. Recent speeches made in Hindi by few national leaders of India in International summits were used for practical lessons. It was discovered that undergraduates who merely knew about interpretation and its practice were confident that they can improve their lexical knowledge, general knowledge and soft skills through practices of interpretation. This research is significant for the sustainability of language practices of Hindi as a foreign language in Sri Lanka.

Keywords: interpretation, Hindi, language practice, foreign language, sustainability

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The Evolution of the Theological Vision in Sinhala Catholic Poetry

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There have been several research works completed on Sinhala Catholic Hymns. However, an extensive research has not yet been done on Sinhala Catholic Poetry. The main purpose of this research is to fill this lacuna. Historically four periods can be identified in relation to the theological vision and the evolution of Sinhala Catholic Poetry. Firstly, the erudite Buddhist bard Alagiyavanna Mukaveti's *KustantinuHatana* (The Campaign of Don Constantine) during the Portuguese era, secondly the poetic contribution of the Goan missionary, Fr. Jacome Gonsalvez during the Dutch period, thirdly the poetries written by Fr. Mercelline Jayakody in the Post Vatican II Council era (1962-65) and finally the creations of Sinhala Catholic poetry writers mainly the laity in modern era (1965 – 2017).

When examining the poetic creations of these four periods, the researcher was able to identify a paradigm shift in their theological content. The poetries written in Pre - Vatican Council era are influenced by the conservative scholastic theology while most of the creations of Post Vatican Council era are inspired by the insights of contextual or liberation theology. Hence, this paradigm shift can simply be explained as a shift from traditional scholastic theology to liberation theology.

As for methodology of this research I intend to employ source criticism and the historical criticism. The use of comparative method will help to identify the paradigm shift in the theological content of the poetries examined. In delimiting the research topic, I have selected only the poetry books which have been published exempting the poems published in newspapers and magazines.

Keywords: Catholic Sinhala Poems, Post – Vatican Poetry, Theological Content, Alagiyavanna Mukaveti, Jacome Gonsalvez, Mercelline Jayakody.

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The Relationship between the Church and the State: A Study based on the French Revolution

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After the crucifixion of Jesus, the first Christian Community was persecuted by the Roman Empire for nearly three centuries. The Roman Emperor Constantine granted religious freedom to all religions in the Roman Empire through the Edict of Milan (313 CE). This is the beginning of Church-State relationship. When the emperor Theodosius acclaimed Christianity as the State Religion (381 CE) the Church-State relationship was further strengthened.

From Constantine to the 18th century French Revolution (1789), the power struggle between the Monarchy and the Pope continued in Europe in different historical circumstances and incidents like Barbarian Invasion and the process of secularization of the Western Church.

When examining the Church-State relationship, the French Revolution is unique mainly because of its impact on the Church. Before French Revolution the temporal and the spiritual powers of Pope which nourished the European feudal system of the medieval Church were challenged by the Humanist Movement (14thC.) and the Lutheran Reformation (16thC.). The power of the Pope and the Papal State were further weakened by the democratic ideals of the French Revolution namely Liberty, Equality and Fraternity. Ironically they are the sacred values of God's Kingdom witnessed by Jesus of Nazareth who suffered a violent death and the First Christian Community bore witness while being persecuted by the Roman Empire.

As for methodology of this research I intend to use two methods, namely historical criticism and source criticism to identify the dynamics of Church-State relationship.

Keywords: First Christian Community, Emperor Constantine, Edict of Milan, French Revolution, Humanism

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**තිරසාර සංවර්ධනයෙහි ලා ශ්‍රී ලාංකේය සිනමා ගීතයේ උපයෝගීතාව
(ඓතිහාසික කතා ඇතුළත් සිනමා කෘති ඇසුරෙන්)
බී. ඒ. එන්. එච්. බස්නායක¹**

පවත්නා සමාජ අවශ්‍යතාවක් පූරණය කිරීමේ අදහස පෙරදැරි ව බොහෝ නිර්මාණ බිහි වේ. ඊට ප්‍රබලතම හේතු ව වශයෙන් සැලකිය හැකි වන්නේ සමාජය හා නිර්මාණකරුවා යනු අත්‍යන්තයෙන් ම බැඳී පවතින සාධක ද්වයක් වන බැවිනි. ලෝක ඉතිහාසයෙන් ද මේ සඳහා නිදර්ශන ඕනෑ තරම් සඳහන් කළ හැකි ය. රුසියන් විප්ලවයත් ප්‍රංශ විප්ලවයත් මේ සඳහා දිය හැකි කදිම නිදසුන් ද්විත්වයකි. ලංකාවේ ද සම්භාව්‍ය සාහිත්‍යයේ කෘති මේ සඳහා නිදසුන් වෙයි. වර්තමානයේ ද දැඩි අවශ්‍යතාවක් වන තිරසාර සංවර්ධනය කෙරෙහි නිර්මාණකරුවාගේ අවධානය යොමු වීම වඩා වැදගත් වන්නේ එබැවිනි. තිරසාර සංවර්ධනය යන්නෙන් අදහස් වන්නේ මූලික ව ම පරිසරයේ පවත්නා සම්පත්වලින් ප්‍රයෝජන ගන්නා අතර ම ඒවා අනාගතය උදෙසා සුරක්ෂා කිරීම ය. මේ පිළිබඳ ව වර්තමාන ලෝකයේ සෑම රටක් ම පාහේ නොමද අවධානයක් යොමු කර ඇති බව නොරහසකි. එබඳු තත්ත්වයක සෑම කලා මාධ්‍යයක් ම ඒ කෙරෙහි දැඩි අවධානයක් යොමු කිරීම යුගාවේණික අවශ්‍යතාවක් ඉටු කිරීමක් වශයෙන් ගිණිය හැකි ය. සිනමාව නම් වූ කලා ශාන්තරය මගින් ඒ සඳහා දිය හැකි දායකත්වය පිළිබඳ මෙහි ලා විමර්ශනය කෙරෙයි. එයින්ද සිනමා ගීතය කෙරෙහි වැඩි අවධානයක් යොමු කෙරේ. මෙහි ලා පර්යේෂණ ගැටලුව වූයේ තිරසාර සංවර්ධන කාර්ය උදෙසා සිනමා ගීතයට කළ හැකි බලපෑම කෙබඳු ද? යන්න ය. මෙම පර්යේෂණයෙහි දී සිනමා කෘති මූලාශ්‍රය වූ අතර ක්ෂේත්‍රයට අදාළ ව වියත් ප්‍රාමාණිකයන් සමඟ කළ සාකච්ඡා ද අතිශය වැදගත් වූ බව පැවැසිය හැකි ය. ඊට අමතර ව පොත් පත්, සඟරා, පුස්තකාල පරිභරණය මෙන් ම අන්තර්ජාලය ද මූලාශ්‍රය වූ බැව් පැවැසිය හැකි ය. තත් ක්‍රමවේදයට අනුව කළ පර්යේෂණයේ දී සිනමාවට අයත් ගීත විමර්ශනයට ලක් කිරීමෙන් අනතුරු ව පරිසරය භුක්ති විඳිමින් එය මතු පරපුර උදෙසා සුරක්ෂා කර ගත යුතු ය යන සංකල්පය ව්‍යාපාර්ථවත් ව මෙන් ම ව්‍යංග්‍යාර්ථවත් ව නිරූපණය වන බව තහවුරු විය. ඓතිහාසික සිද්ධි අන්තර්ගත සිනමා කෘතිවල පවා තදීය ලක්ෂණය පෙන්නුම් කරන බැව් ද හඳුනාගත හැකි විය. විශේෂයෙන් ම පරාක්‍රමබාහු රජුගේ චරිත කතාව ඇතුළත් 'සිරි පැරකුම්' ඒ සඳහා කදිම නිදසුනකි. එම කරුණු අනුව සිනමා කෘතිවල තිරසාර සංවර්ධනය පිළිබඳ ව වූ සංකල්පය ක්‍රියාත්මක ව පවතින අතුරෙහි ම සිනමා ගීතය යනු තත් සංකල්පීය කරුණු ප්‍රේක්ෂකයාට නිරායාසයෙන් ම සුවනය කළ හැකි ප්‍රබල මාධ්‍යයක් බව නිගමනය කළ හැකි ය. එහෙයින් එය රටේ මෙන් ම ලෝකයේ සංවර්ධනය සඳහා බෙහෙවින් ඉවහල් කර ගත හැකි ය.

ප්‍රමුඛ පද: ගීතය, තිරසාර, පරිසරය, සිනමාව, ශාන්තරය

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The Impact of L1 on L2 Writing Style

W.S. Nimasha Dilshani¹

In a multi-lingual society, native speakers tend to learn second languages (L2). Phonological features of the first language (L1) affect the second language acquisition (James E Flege,1980 & Ucheoma Owhoeli,2011). Sri Lanka is a multi-lingual society with Sinhala and Tamil as the dominant languages and English as the linking language. Thus, Sinhala natives tend to learn Tamil language while the Tamil natives tend to learn Sinhala language as L2. This research investigated how the phonemic system of first language affects the writing style of a second language. The target languages were Tamil as the first language and Sinhala as the second language. Few qualitative and quantitative methods were used as the research methodology. In the first step, data were collected from 10 participants whose first language was Tamil while the second language was Sinhala. All the participants were studying Sinhala language as L2 in structured as well as in non-structured purposes. A structured paper with 30 sentences was prepared on the basis of phonemic systems of the above two languages and recommended the participants of the selected sample to translate the given sentences in Tamil language (L1) into Sinhala language (L2). In the second step, written compositions of the participants were the instrument for data collection. Finally, the data were analyzed with the phonemic system of the Sinhala language (L2). The findings of the data analysis yielded categories viz phonemic differences, insertion of vowels/consonants between word clusters and omission/wrong use of rules of concord. With the results of the research, it was revealed that the phonemic system of the first language directly affects for the writing style of the second language. Specially, the writing style differs according to the sounds available in the first language and it highly affects for the accuracy of the writing. Thus this opens up new research avenues to investigate the impact of the first language on the phonological structures of the second language on the basis of different languages.

Keywords: first language, second language, written language, phonemic system

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Voice Education of Vocal Students: A Case Study based on the Knowledge of Voice and Vocal Health

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The human voice is the most dynamic and versatile of all musical instruments. So its necessary to be knowledgeable to maintain its health. However, the students who are in the practice of vocal music do not seem to pay much attention in this though they pay more attention to what they sing: various singing styles with adequate knowledge in particular singing styles. It was revealed that the students learn, yet their knowledge about vocal health and the mechanism of voice production is minimal. As a result, the students lose the integration of voice and collapse at a certain stage. Therefore, the primary objective of the present study is to conduct an extensive study whether the students have knowledge about vocal health and whether they understand the process of voice production while singing. Data was gathered by forwarding a questionnaire to 40 vocal students all of whom are studying at undergraduate level. The study revealed that the voice training is significantly helpful in maintaining the vocal chords and voice balance. It could also be concluded that the majority of the students do not have sufficient knowledge on voice production.

Keywords: Voice, Vocal health, Vocal Mechanism, Voice Training

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තිරසර සංවර්ධනය හා සමාජ විශ්වලේඛන : අපර දෙවන වතිකාන සමාජ විශ්වලේඛන ඇසුරෙන් විමර්ශනාත්මක අධ්‍යයනයක්
ඩබ්. ඩී. ක්‍රිෂානි ප්‍රබෝධා පෙරේරා¹

තිරසර සංවර්ධනය නමැති ප්‍රවණතාව කෙරෙහි ලොව බහුතර රාජ්‍යයන්ගේ අවධානය යොමුව ඇති වාතාවරණයක තුන්වන ලෝකයේ රටක් වන්නාවූ ශ්‍රී ලංකාව කෙරෙහි එය බලපාන ආකාරය පිළිබඳ විවිධ මතිමතාන්තර සේ ම, ප්‍රායෝගික තත්ත්වයන් ද දක්නට ලැබේ. මෙහිදී පරිසරය පිළිබඳ හෝ මානව ප්‍රජාවගේ සංවර්ධනය පිළිබඳ ප්‍රමුඛත්වය නොදී හුදෙක් භෞතික සංවර්ධනය පමණක් සිදුවන බව බහුතර විශාරදයන්ගේ මෙන් ම ජනතාවගේ මතය ද වේ. මෙවැනි පසුබිමක ශ්‍රී ලංකාව තිරසර සංවර්ධනය වෙත යොමුවන ආකාරය සහ එහි අනාගත ගමන් මග පිළිබඳව මෙම අධ්‍යයනයේ දී විමර්ශනයට ලක්කෙරේ. නිරීක්ෂණය, විග්‍රහය සහ ක්‍රියාවලිය වමාටැල 'ජප්' යනවිමුක්ති දේවධාර්මිකක්‍රමවේදයට අනුගතව සිදුකෙරෙන්නාවූ මෙම පර්යේෂණයේ අරමුණ වනුයේ ශ්‍රී ලාංකේය සන්දර්භයේ සංවර්ධනය සිදුවන ආකාරය පිළිබඳ සමාජ විශ්වලේඛන ඇසුරෙන් විමර්ශනාත්මක විග්‍රහයක් ඉදිරිපත් කිරීමයි. ඒ අනුව තිරසර සංවර්ධනය හමුවෙහි ශ්‍රී ලාංකේය ක්‍රියාකාරීත්වය ද තිරසර සංවර්ධන ඉලක්ක සපුරාගැනීමේ ක්‍රියාවලිය ද විග්‍රහයකට ලක්කෙරේ. මෙහිලා සාධනීය පැතිකඩ මෙන්ම නිෂේධනීය තත්ත්වයන් විමසීමෙන් අනතුරුව ශ්‍රී ලාංකේය සන්දර්භයේ තිරසර සංවර්ධනය ක්‍රියාත්මක කරලීමේ දී සැලකිල්ලට ගත යුතු කාරණා සාකච්ඡා කෙරේ. එහිදී ආසියාතික යථාර්ථයන් වන ආගමිකත්වය සහ දරිද්‍රතාවය යන්න කෙරෙහි අවධානය යොමුකරමින් මෙකී සංවර්ධනය සිදුවිය යුතු බව කිව යුතුය. සංවර්ධනය පිළිබඳ අපර දෙවන වතිකාන සමාජ විශ්වලේඛන වන ජනතා ප්‍රගතිය :ජදවමකදරමප ඡරදටර්සද*ලසමාජ සැලකිල්ල ්දකසජසළමාද සැසද්ජස්කසි*ලප්‍රේමය තුළ සත්‍යය :කරසඵ සබ ඵැරසඵඵ*සහප්‍රශංසා වේවා මා සම්ඳුට :බ්මාඵද ්ස* යන ප්‍රකාශන මගින් ලබාදෙන ඉගැන්වීම් ශ්‍රී ලාංකේය තිරසර සංවර්ධන ක්‍රියාවලියෙහි ලා අදාළ කරගතහැකි ආකාරය විග්‍රහයකට ලක්කෙරෙන මෙම අධ්‍යයනයේ දී න්‍යායාත්මක සහ ප්‍රායෝගික යෝජනා ද ඉදිරිපත් කිරීමට අපේක්ෂා කෙරේ.තිරසර සංවර්ධනය සහ ශ්‍රී ලාංකේය සන්දර්භය සම්බන්ධව කිතුනු සමාජ දැක්ම ඇසුරෙන් විධිමත් ශාස්ත්‍රීය පර්යේෂණයක් මෙතෙක් සිදුවී නොමැති හෙයින් එකී පර්යේෂණ රික්තය පූර්ණ කිරීම මෙම පර්යේෂණයේ වැදගත්කම හා සම්බන්ධ වේ. සංවර්ධනය පිළිබඳ න්‍යායාත්මක මෙන් ම ප්‍රායෝගික ක්‍රියාපිළිවෙතක් ද ඉදිරිපත් කිරීම කාලීන අවශ්‍යතාවක් සපුරාලීමකි.

ප මූලාසපද :තිරසර සංවර්ධනය සහ ශ්‍රී ලංකාව, අපර දෙවන වතිකාන සමාජ විශ්වලේඛන, ජනතා ප්‍රගතිය, සමාජ සැලකිල්ල, ප්‍රේමය තුළ සත්‍යය

¹පශ්චාද් උපාධි අධ්‍යයන පීඨය, කැලණිය විශ්වවිද්‍යාලය, praboda.krishani5@gmail.com .

Role of Internal Factors in Learning English as a Second Language classroom: A study of Undergraduates

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Learning English as a Second Language (ESL) plays a vital role in Sri Lankan society. In ESL context Sri Lankan undergraduates encounter various difficulties in learning English such as getting exposed to an English speaking environment, anxiety that hinders the authentic expression of ideas. Therefore, this observation paved the way to identify the fundamental internal factors which affect English as a Second Language (ESL) classroom of undergraduates. The sample of this research consists of randomly selected 30 First year participants learning English as a Second Language in the faculties of Dance and Drama, Music and Visual Arts, University of the Visual and Performing Arts, Colombo 07. For the purpose of clear analysis of data, it was decided to conduct the study quantitatively and the collection of data was done via a questionnaire consisting Likert Scale questions, Multiple Choice questions and Open-Ended questions. The study mainly focuses on two major internal variables in learning English, namely motivation, both intrinsic and extrinsic and attitude. These can be considered as some of the most determining factors that enhance efficiency of students in language classroom. The results of this research indicate that the majority of the participants belonging to the faculty of Dance and Drama are highly motivated and they have positive attitude towards learning English compared to the participants of other faculties. Moreover, this research reveals the reasons for negative attitude and lack of motivation in ESL classroom. Further, it identifies other internal factors such as anxiety, age and the influence of the first language that affect Second language learning. Based on the findings it is recommended that conducting lessons interestingly while motivating and encouraging students to use English and making them aware of the importance of learning English can result in their enhanced motivation and positive attitude towards learning English. Furthermore, the undergraduates will successfully obtain the ability of English Language Learning.

Keywords: Internal Factors, Motivation, Attitude, Undergraduates, Second Language Learning.

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An Analytical Study on the Reasonability of Economic Stimulation of the Human Beings to Overcome Sustainable Development Challenges Depicted in Hindi Novel *go:da:n*

Ranasinghe, Y. G. D. L¹

The development that maintain the necessary conditions for future generations to fulfill their aspirations and requirements while at the same time uses and manages the biotic system, while preserving the ability of meeting the highest sustainable benefits to the present generation is called sustainable development. Recently, a set of 17 sustainable development goals was adopted by the UNO at the 70th General Conference, which are to be implemented and achieved in every country from 2016-2030. India had been a British colony for many years and at that time the traditional Indian aspects of social, economic, political, cultural, religious and literary spheres were destroyed. As a result of this colonization and the origin of industrialization, the aspirations and attitudes of Indian people were rehabilitated politically, economically and culturally. *go:da:n* is one of such novels of prominent Hindi writer *pre:mcand*, which reveals such social transformation of India. *go:bār* is a young man who practically affirms to people of his own race, that economic strength is the contributory factor to reach a higher social level, by struggling with the oppression of severe poverty and imprudence of landowners and adapting his life according to the socio-economically, politically diversified society of India through industrialization. *pre:mcand* has been able to explain that gender equality plays a leading part in social development, through the female protagonists *dhānia* and *Junija*, who were raised against the traditional practices of the women in Indian society, which is one of five broad areas that SDGs have focused on. The objective of this study is to analyze the reasonability of economic stimulation of human beings to achieving SDGs through the eradication of poverty, social equity and the renewal of global solidarity through gender equality, which is depicted in the novel *go:da:n*. This study was done through literary reviews based on sustainable development and this is important to emphasize the utility of literary creations to provoke the attitudes of human beings about sustainable development.

Keywords: Sustainable Development Goals (SDGs), Sustainable Development Challenges, Reasonability, Economic Stimulation, Human Beings

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An Analytical Study on Applicability of the Sustainable Development Goals depicted in the Hindi Short-story *ra:ni: mā: ka: cābu:tāra:*

Perera, W. U. P.¹

At the convention of the UNEP- 2015, world countries adopted Sustainable Development Goals (SDGs) to create a platform for a unitary state by eliminating social, economic and environmental challenges that will lead to global development through the accomplishment of the present needs without compromising the ability of the future generation to meet their own needs with the applicability for all countries of the world. As a member of the UNO, India is also committed to implementing the SDGs, which have developed to cover more aspects of development. Although India is also included in the top five countries of the world's fastest growing economies, inequality and poverty remain a significant problem across the country, which is a great challenge in order to achieve the highest level of social development, amidst the traditional attitudes of Indians. It can be identified that practical usage of SDGs such as eradicating poverty in all its forms and dimensions, gender inequality etc. can be found within the Hindi short-story *ra:ni: mā: ka: cābu:tāra:* of prominent female Hindi writer, *mānnu: bhāṇḍa:ri:*. The main protagonist of this short-story, *gula:bi:* is a poor woman, who reveals that there is a need to re-structure the thoughts of anti-pauperism not by lamping for god for the sake of our lives, but by utilizing our native spirits to prosper the lives of the present and future generations. Hence she was harbored and oppressed by both male and female societies as a result of conventional and traditional attitudes of the male-dominant society of India towards the women. Through this, *gula:bi:* emphasized that sustainable development of human resources depends on the proper management of individual spirits of human beings which is one of five broad areas that has been focused in the SDGs. The objective of this study is to analyze the applicability of the SDGs depicted in the Hindi short-story *ra:ni: mā: ka: cābu:tāra:*. This study was done through literary reviews based on sustainable development and this is important to reveal the contribution of literary creations to explicate the sustainable development to the society and encourage such literary creations.

Keywords: SDGs (Sustainable Development Goals), Sustainable Development Challenges, Applicability, Management, Human Resources

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ක්‍රි. ව. දහවන සියවසේ ලක්දිව සෙල්ලිපිවලින් හඳුනාගත හැකි තිරසර සංවර්ධන ක්‍රිකෝණය.

කේ. කිත්මි පී පෙරේරා¹

තිරසර සංවර්ධනය යනු මූලිකව ම පාරිසරික සම්පත්වලින් ප්‍රයෝජන ලබා ගන්නා අතර ම අනාගතය සඳහා ඒවා සුරැකීමයි. එහි දී පවත්නා සම්පත් ප්‍රයෝජනයට ගන්නා ආකාරයත්, ප්‍රයෝජනයට ගත් සම්පත් සංවර්ධනය කිරීමත්, අනාගත පරම්පරාවේ සුරක්ෂාව වෙනුවෙන් සම්පත් ආරක්ෂා කිරීමත් පිළිබඳ මනා අවබෝධයක් තිබීම අවැසි ම ය. ක්‍රි.ව. 10 වන සියවසේ ශ්‍රී ලංකාවේ පැවති එකී සංවර්ධන ස්වභාවය කෙසේ ද යන්න මෙහි දී විමසා බැලේ. වත්මන් සමාජයට තිරසර සංවර්ධනයක අවශ්‍යතාව මතු වී ඇත්තේ සහ විවිධ අණ පනත් පනවා ඇත්තේ මිනිසා සහ සංවර්ධනය පිළිබඳ සැබෑ අර්ථය වටහා නොගැනීම හේතුවෙනි. එහෙත් අපේ පැරණි මිනිසා පරිසරය මැනවින් පරිහරණය කොට, විවිධ සංවර්ධන ක්‍රම රැසක්ට දායක වී තිබේ. ඊට හේතු වන්නට ඇත්තේ ක්‍රමානුකූලභාවය හා පරිසරය පිළිබඳ වූ ඇල්ම, වාරිකු වාරිකු වලට හා මිනිසත් භාවයට මුල්තැන දීම විය හැකි ය. මෙම පර්යේෂණය සඳහා යොදා ගත්තේ ක්‍රි. ව. දහවන සියවසට අදාළ සෙල්ලිපි ය. සෙල්ලිපි ආශ්‍රිත විමර්ශනයකින් පසු එකල මිනිසා මනා සංවර්ධනයකට අවශ්‍ය තිරසර සංවර්ධන ක්‍රිකෝණය නැතහොත් ප්‍රධාන අංගයක් පිළිබඳ ව තම අවධානය යොමු කොට ඇති බව හඳුනා ගන්නට ලැබිණි. එනම් පාරිසරික සමතුලිතතාව ආරක්ෂා කිරීමත්, ආර්ථික සමෘද්ධිය මැනවින් පවත්වාගෙන යාම හා සමාජීය යහපැවැත්ම අගය කොට සැලකීමත් ය. ඒ අනුව නූතන සමාජයේ දක්නට නොලැබෙන සියුම් ක්‍රම සහ විධි පැරණිමිනිසුන් අතර පැවැති බව තහවුරු විය. විශේෂයෙන් ම ස්වභාවික පරිසරයට මූලිකත්වය ලබා දීම, ඒවා වෙනස් කිරීමට හෝ බලපෑම් කිරීමට ක්‍රියා නොකිරීම, ආර්ථික තත්ත්වය සඳහා විවිධ ක්‍රමෝපායන් පවත්වාගෙන යාම, ප්‍රධාන වගා බෝග සහ අතිරේක ඉපැයුම් මාර්ග ක්‍රියාත්මක කිරීම මගින් සමාජයේ යහ පැවැත්ම ආරක්ෂා කිරීමට කටයුතු කිරීම හඳුනාගත හැකි විය. මෙම සියලු කාර්යන් සිරිත්-විරිත් පරිදි නීතිමය වශයෙන් ලේඛනය කොට පණවන ලද ව්‍යවස්ථා හා අණපනත් මත ක්‍රමානුකූල ව ක්‍රියාත්මක වීම ද විශේෂයකි. ඒ අනුව අතීත සංවර්ධන ක්‍රම නූතනය වෙනුවෙන් භාවිත කළ හැක්කේ කෙසේ දැයි යන්න අවබෝධයක් මෙහි දී ලබා ගත හැකි ය.

ප්‍රමුඛ පද- තිරසර සංවර්ධනය, ක්‍රි.ව. 10 වන සියවසේ ශ්‍රී ලංකාව, තිරසර සංවර්ධන ක්‍රිකෝණය, මිනිසා සහ සංවර්ධනය, අතීත සංවර්ධන ක්‍රම.

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Sri Lankan Commercial Artists of the Pre-Digital Era: A Case Study of the History of Graphic Design in Sri Lanka

Asitha Amarakoon¹

The aim of this study is to examine and identify the work of artists & designers of the pre-digital era of commercial art in Sri Lanka. It is problematic that many of the commercial work done in this era are not properly documented, deliberately or accidentally, despite the fact that many well-known artists have worked as designers, to create logos, posters, book covers and advertisements, etc.. The study was conducted using both literary and field surveys. Literature survey was conducted to gather information about the documented commercial artists in 1950 to 1980. Whereas a field survey, inclusive of interviews with authors, collectors, and artists who were active in this era, was conducted to gather undocumented information. Evidently, only a handful of work can be authentically attributed to their creators. Some famous master artists were recognized as designers, yet their commercial work are not archived. Most of the work done by lesser known designers cannot be attributed to their creators as these work are uncredited. It can be assumed that designers working as employees of publishing companies were not credited due to copyright policies. Only the signed work can be recognized with their creators, although many of these lesser-known designers cannot be identified due to the lack of proper documentation and proper archiving.

Keywords: graphic design, artists, designers, pre-digital era, sri lanka

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Role of the Cinematographer in Sustainable Development (Criticism, During the Period 2005-2017)

B.A.N.H. Basnayaka¹

In order to fulfill social necessities, an artist becomes a pioneer in every time. There are so many examples all around the world which prove it. Russian revolution and France revolution are two of best examples for that. In Sri Lanka, most of the classical literacy texts are being written fulfilling that necessity. The prose poems like “Buthsarana” & “Amawathura” have being written in order to fulfill that timely social necessities. So an artist can provide a special coordination to publish sustainable development which has been strongly discussed. The purpose of this research is to analyze the cinematographer ‘s duty in sustainable development. The research problem is how a cinematographer contribute in sustainable development. Films, documentary films, books, magazines & internet were used as research method. In addition to that, the discussions with the experts in the cinema also supported in research method. The target of sustainable development is utilization of environmental resources & save them for the future generation. This task is more pronounced in cinema than publishing in linguistic media. Because cinema is more attractive among general audience. Lot of documentary films have been produced targeting sustainable development. They are “Food”, “ocean” (2009) in France, “Earth” (2007) in UK, “plastic planet” (2009) in German, “cow’s piracy” (2014) in USA etc. Several television programs are telecast in Sri Lanka aiming the above task. But, they are not enough to develop the human attitudes in the present world. Multiple functions can be done through the cinema for the fruitfulness of sustainable development & the contribution methods for the above task is finely analyzed through this research.

Keywords: Attitudes, Cinematographer, Contribution, Film, Human

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Visual Arts for Sustainable Development: An Analysis on the Potentiality of Visual Arts in Contributing towards the Sustainable Development

N. M. Salinda Roshan Bandara¹, D. D. N. Perera²

Visual Art is a medium used to impart the morals, values and new perspectives on the well-being of the society while the Sustainable Development focuses on the needs of the present without compromising the ability of future generations to meet their own needs. It is obvious that the ‘Environment’ becomes fundamental in visual artists in creation of their artistic works and thoughts. In order to blend the rational and emotional expressions of the human beings, visual arts act as the ideal medium to build the awareness of the sustainable development and inspire the people to act in a positive manner towards it. This research aimed to stress the potentiality of visual arts activities and programmes in contributing the sustainable development. It is recognized that sustainable development requires a balanced progress in four interdependent dimensions such as, Social, Economic, Environmental and Cultural. The engagement of the visual arts in those dimensions also is inevitably considerable. Therefore, the Visual Arts activities and programmes have the sole opportunity to lead the formulation, implementation, monitoring and evaluation of the sustainable development policies and measures. This research provides suggestions and recommendations for effective Visual Arts activities and programmes in achieving the sustainable development. Throughout this research, the researcher discusses mainly about the field of Visual arts, ways of promoting sustainable development through visual arts activities and programmes, creation of art advocacy in building value and relevancy of visual arts in sustainable development and to create Visual artists and influencers in the world of art who are determined to reinstate the role of visual art in a context where their contributions will be a visible reflect for the sustainable development.

Keywords: Visual Arts, Sustainable Development, Environment, Potential, Policies

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Syntactic Difficulties Encountered by Sinhala Native Speakers in Learning German as a Foreign Language

D.M.H.M, Danansooriya¹

When the attention is focused on learning German as a Foreign Language as a beginner in the first year at University of Kelaniya it has been observed that the learners who do not have any knowledge in German before the university entrance find it difficult to comprehend the syntactic patterns in German language. Particularly due to the influence of the mother tongue Sinhala, in which the syntactic pattern is different, the students find it confusing at the initial stage of learning the language. Furthermore, when constructing sentences, the students have the tendency to translate word by word following the syntactic rules of their first language. The word order in declarative sentences the verb should be in the second position in German. Second position does not mean the second word. It means the second element in a sentence. However, the majority of the students merely count words when they make sentences and thus construct grammatically incorrect structures. As the data collecting methods researcher analysed the answers written by the students in their written work including continuous assessments, class tests and end of course examinations. Furthermore, face to face interviews with the lecturers in German, questionnaire reviews, student performance analysis and classroom observation were also done in order to gather data. This study focuses on common areas of syntactic difficulty for a larger number of students at beginner level. In conclusion, the study helped to find out the common errors done by the students in learning syntactic patterns and develop teaching strategies that can minimize the number of difficulties encountered by the first year students in learning the syntactic patterns. Research sample of this study limited to 50 students at beginner level, University of Kelaniya, interviews with five teachers at other institutions revealed that the difficulties encountered in grasping the syntactic patterns are common among the learners. Thus, it is envisaged through this study that the learners as well as teachers of German as a Foreign Language in Sri Lanka will have an insight into areas of difficulty in syntax faced by students of German that need more attention when designing lessons at beginner level.

Keywords: Syntactic difficulty, German, Sinhala, Native Speakers, Foreign Language

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Past Tense Errors of Undergraduates in Learning Tamil as a Second Language: A Case Study

S. Sujitha¹

Undergraduates who have been learning Tamil as a second Language for years, their written compositions have proved inability to perform correct grammatical features in the appropriate function. The purpose of this study is to identify the common grammatical errors of the past tense verbs in spoken Tamil and the causes for this situation. It describes and pin-points the areas of difficulty that the speakers of Sinhalese language have in learning Tamil as a Second Language. There are number of regional and social dialects existing in both Tamil and Sinhala. However, the Tamil data represent the author's own dialect, the Jaffna Tamil which is a socio-regional sub-dialect of Sri Lankan Tamil. The Sinhala data represent the Colombo dialect of Sinhala. The fifty students were selected for this present study are the students who are following first and second year Translation studies of the Department of Linguistics, University of Kelaniya and the First Language of the above students is Sinhalese. Due to the interference of their First Language students tend to perform many errors in Tenses. The data was collected by studying the answer scripts of the above students. Fifty answer scripts were analyzed using the theory of error analysis. This study involves the methodology of contrastive and descriptive analysis of morphological structure of past tense verbs in Tamil and Sinhala, in order to establish the facts that there are similarities and dissimilarities in the two languages. It is believed that this study of this kind would facilitate the teachers' task of preparing teaching materials and to identify students' difficulties in learning Tamil as a second language. Further, it will reduce the students' burden of learning Tamil as a second language. Furthermore, this study will encourage other scholars to undertake more research work in this field.

Keywords: past tense, errors, spoken Tamil, Spoken Sinhalese, Second Language

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A Study on Superstition on Black Magic among People in Sri Lanka

Ranaweera K. G. N. U^{1*}, Gamage T. C. R

Black Magic (BM) referred to the usage of supernatural powers for evil purposes. There are many myths and believes related to BM all over the world with different names. The origin of the BM goes to the primitive societies in the ancient era. Supernatural powers of the nature and the cosmic were being consider as living things and there was a belief that some people could take this powers to their own hand and control while using them for evil purposes. Although the integration of economic, political and social cultures created globalization with the progressive transition from a 'pre-modern' or 'traditional' to a 'modern' society, the beliefs of BM had been continued up to now as the exact way of they were. In Sri Lankan context, belief of the BM has been existed before the dawn of civilization. Sri Lankan tribes had been used these BM for evil and selfish purposes. After rooting caste system there was a special caste which contained the ability of BM. Rodi was one of them. Although the caste system had fade away from Sri Lanka, there are number of people who are being supplied BM with the business purposes while a group of people are being demanded BM. The main objective of the study was to examine the reasons on Superstition on BM among people in Sri Lanka with special reference to southern province. Purposive sample of 10 BM centers were selected according to paper advertisement from Southern Province Sri Lanka and data were collected by using semi structured interviews and observation from randomly selected 100 clients of the BM centers. An explorative analysis was carried out by using books, e journals and internet as secondary data sources to gain relevant literature on BM. Family conflicts, politics, education and the problems of the work place had made frustrated. People used to get rid of their frustration by doing BM. They believe in revenge from the other party who feel jealous and don't want to see them happy. At the same time research revealed that people take salvation from the stress by doing BM. Although the education and wealth considered as the motive power of development and modernization it had not affect in usage of BM. These superstitions revealed that the human has gone back from the mind while going forward in physically. Selfishness and suspicions among people has been increased. Media, newspaper advertisements, Television shows, Dramas and Films plays a vital role in promoting BM. At the same time media could be recognize as a great source to spread awareness about the danger and harm of BM which is has been rooted in our society before becoming very important and obligatory.

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බෞද්ධ සමීකරණ සංකල්පය පිළිබඳ විමර්ශනාත්මක අධ්‍යයනයක්

A Philosophize Studies Regarding the Concept of Buddhist Assimilation

D.M.L. Harshika Bandara¹

“සමීකරණය” සංකල්පයක් වශයෙන් මෙන් ම න්‍යායක් වශයෙන් කළමණාකරණය, ආර්ථික විද්‍යාව, ගිණුම්කරණය, ගණිතය ආදී භෞතික විෂය ක්‍ෂේත්‍රයන් තුළ බහුලව භාවිත වන සංකල්පයකි. මෙම සංකල්පයෙහි බෞද්ධ භාවිතය වඩාත් හොඳින් මූලාශ්‍රය ඇසුරින් තහවුරු කිරීම මෙම පර්යේෂණයේ මූලික අරමුණයි. ඒ තුළින් බුදුදහමේ නව පර්යේෂණ විෂය ක්‍ෂේත්‍රයක් ද අනාවරණය වීම සුවිශේෂී වේ. ඒ අනුව සමීකරණයක් යන්න සරලව හඳුන්වාදීමේ දී ඉංග්‍රීසි භාෂාවෙන් මේ සඳහා දියහැකි කදිමතම සහ යෝග්‍යතම යෙදුම “සපසක්චසදබ්” යන්නය. එහි අර්ථය සංකලනය, සමීකරණය, ස්ථිකරණය, සමග්‍රහනය, උරාගැනීම ආදී වශයෙන් සරල යෙදුම් හඳුනාගත හැකි ය. ඉන් මෙම පර්යේෂණය සඳහා අප විසින් තොරාගනු ලැබුවේ “සමීකරණය” යන්නයි. එහි තේරුම නම්, සමකිරීමයි. නමුත් මෙම පර්යේෂණයේ දී බුදුදහමට අනුව සමීකරණය යන්න භාවිතකොට ඇත්තේ සියල්ල හා සම කිරීම නොව පවතින පොදු සම්මතයන් පිළිබඳ ව ද සැලකිල්ල දක්වමින් වඩාත් උචිත සහ යෝග්‍ය නව ආකල්පයක් පොදුජන කැමැත්ත සහිතව සමාජගත කිරීම යන්නයි. විශේෂයෙන් ම බෞද්ධ රාජ්‍යයන් තුළ බුදුදහම වඩාත් වේගයෙන් ව්‍යාප්ත වීමට සහ එරට ජනතාව හරසරින් බුදුදහම පිළිගනිමින් අඛණ්ඩව ආරක්‍ෂා කිරීමට හේතු සොයා යෑමේ දී හමුවන ප්‍රධාන සංකල්පයක් වශයෙන් මෙම “බෞද්ධ සමීකරණ සංකල්පය” හඳුනාගත හැකි ය.

පවතින සංස්කෘතිය හා නොගැටෙමින්, ප්‍රතිකේෂප ද නොවෙන අයුරින්, බුදුදහම ජන මනසට වඩාත් තදින් කා වැද්දවීමට බෞද්ධ සමීකරණ සංකල්පය හේතු වී ඇති ආකාරය මෙම පර්යේෂණය තුළින් සාකච්ඡා කිරීමට නියමිත ය. එමෙන් ම බුදුදහම අනෙක් සමාජ සංස්කෘතීන් සමග සාර්ථකව සමීකරණය වීමට බලපෑ සාධක පිළිබඳව ද මෙම පර්යේෂණය තුළින් විමර්ශනයට ලක්කෙරේ. තවද මෙහිදී බෞද්ධ සමීකරණ සංකල්පයේ න්‍යායාත්මක පසුබිම හඳුන්වාදීම ද සුවිශේෂී වේ. එමෙන් ම කිසියම් සමාජයක පවතින විශ්වාස, වාරිත්‍වවාරිත්‍ර, සංස්කෘතිකාංග, දේශපාලනය, ආර්ථිකය යන කරුණු මනාව සලකා බලමින් එම සමාජ සැකැස්ම හා සමීකරණය වන බෞද්ධ ඉගැන්වීම් ඉදිරිපත්කළ ආකාරය ද මෙහි දී විමර්ශනයට ලක්කිරීමට නියමිත ය. මේ ආ දී වශයෙන් සමීකරණ සංකල්පයේ බෞද්ධ භාවිතය හඳුනාගතහැකි කදිම අවස්ථා මෙන් ම ඊට අදාළ බෞද්ධ ඉගැන්වීම් ත්‍රිපිටකය ආශ්‍රයෙන් මතුකර දැක්වීම තුළින් බෞද්ධ ශාස්ත්‍රීය අධ්‍යයන ක්‍ෂේත්‍රයට නව අධ්‍යයන ප්‍රවේශයක් මෙම පර්යේෂණය තුළින් ඉස්මතුකර දැක්වීම මුඛ්‍ය පරමාර්ථය වේ.

ප්‍රමුඛ පද: සමීකරණය/ සංස්කෘතිකාංග/ ධර්මපදය/ ත්‍රිපිටකය/

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A Study on the Human Embryology as Depicted in the Yogācāra School

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Literally, the science of the embryo is called ‘Embryology’. On the other hand, it is a branch of science concerned with the study of embryos and the structure and development of the embryo of a particular organism. However, it is dealt with commencing with the union of male and female gametes, development of an organism, covering of an egg or within the body of the mother, metamorphosis, hatching or birth etc (Patten, 1953 : 01). Though, the Buddhism is based on the final emancipation of human beings, we can find some embryological teachings also in the teachings of the Buddha (Majjhima-nikāya, 2006 : 622 & Wickremagama, 2006 : 152). There are well known four philosophical schools in Buddhism as follow; *Sarvāstivāda* or *Vaibhāṣika*, *Sautrāntika*, *Mādhyamaka* and *Yogācāra* or *Vijñānavāda* (*Yogācārabhūmiśāstra*, 1999 : Introduction). *Yogācāryabhūmiśāstra* or *Yogacaryābhūmiśāstra* is the masterpiece of the Yogācāra tradition. It is attributed to the venerable Asaṅga who was a renowned teacher and the pioneer of that tradition. However, many embryological teachings can be seen especially in the second chapter as named *Manobhūmi* of *Yogācārabhūmiśāstra*, under the topics of *Antarābhavaḥ*, *Garbhāvakraṅtiḥ* (*Bīja doṣa* and *Karma doṣa*), *Pritisandhiḥ* and *Garbhāvasthā*. (Bhattacharya, 1957 : 11-72) Not only in the Yogācāra tradition of *Mahāyāna* (Literally, the great vehicle) but also in the *Theravāda* (Literally, the doctrine of Theras) or *Hīnayāna* (Literally, the inferior vehicle) tradition is seen some teachings under the topic mentioned above (Vidusaraṇī, 2010 : 31-44). Though, my ambition on this research paper is to discuss, find some special features, comparing with other traditions etc, regarding to the human embryology with special reference to the Yogācāra School.

Keywords: Embryology, *Yogācāra* School, *Vijñānavāda*, *Yogācārabhūmiśāstra*, *Theravāda* and *Mahāyāna*

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Empowerment and Disempowerment: Sri Lankan English and British English. Attitudes of the Speakers of English as a Second Language in Sri Lanka Regarding Their English Accent

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English was never just a language for Sri Lankans as it was for Indians, Japanese and Chinese and to a lot of other Asian nations. In Sri Lanka, it presented a far more significant social connotation than a mere linguistic connotation. Even the early teaching of English was targeted at creating British type individuals, who could even speak in British accent. However, the movement of “Speak English Our Way” initiated by the guidance of the previous government intended for a radical shift from the failures of the past and an indigenization, or a Sri Lankanization of English. The program intended the legitimization of ‘Sri Lankan English’, and the social disempowerment of ‘British English’, while giving due social recognition for speaking English in Sri Lankan way with Sri Lankan accent and pronunciation. This particular study intends to identify the attitudes of the speakers of English as a second language in Sri Lanka regarding the accent and to assess whether idolizing the British accent has been disempowered. Fifty speakers of English as a second language have been chosen from the Faculty of Humanities to participate in for a questionnaire, which recorded their perception of their accent and British accent, meanwhile five individuals was informally interviewed to gather their perspectives regarding speaking English our way and British accent. The results indicated that 64% are aware of the difference between Sri Lankan and British accents. Meanwhile, 76% are satisfied about their accent, whereas 24% are not. In addition, a vast majority of 84% are watching programs that contain British accent and similarly, a vast majority of 90% admire British accent. Moreover, it was identified that the majority of the individuals who are not satisfied about their accent are the ones who admire and imitate the British accent. However, a minority of the individuals who are satisfied about their accent also admire British accent for its beauty. As far as the comments are concerned, some individuals admire British accent as it represents “class”, and several participants prefer to practice British accent because English is originally the language of Great Britain. On the contrary, some individuals are on the firm belief that Sri Lankans should have their own version of English and do not admire British accent due to its sophistication. Thus, it can be concluded that idolizing British accent is still rooted in the society to a considerable extent; however, an attitudinal change of preferring a Sri Lankan identity in English is being developed among the scholars.

Keywords: British Accent, Sri Lankan Accent, Attitudes, Speak English Our Way

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**“පුද්ගල කායික සංවර්ධනය” බෞද්ධ හා මනෝවිද්‍යාත්මක ආකල්ප පිළිබඳ
තුලනාත්මක අධ්‍යයනයක්**
sobitha karapikkada¹

ජීවියෙකු මව්කුස පිළිසිඳ ගත් අවස්ථාවේ සිට මරණය දක්වා විවිධාකාර වූ විභජනයන්ට භාජනය වේ. මෙම පුද්ගල පරිණාමය මනෝ විද්‍යාව තුළ “ප්‍රජානන සංවර්ධනය” ලෙස දැක් වේ. මේ තුළ පුද්ගලයාගේ කායික වර්ධනය මෙන් ම මානසික වර්ධනය ද සිදුවන අතර, එහි දී ඔහුගේ පෞරුෂය හා සමාජ වර්ධනය සිදු වේ. මනෝ විද්‍යාඥයන්ගේ මතයන්ට අනුව ‘ආරය’ මෙහි දී ප්‍රමුඛ සාධකයක් ලෙස දැක්වෙන අතර, පාරිසරික සාධකයන්ගේ බලපෑම ද සෘජු වශයෙන් සිදු වේ. පශ්චාත් කාලීනව පාරිසරික සාධකයන්ගේ බලපෑම මත ආරමය ලක්ෂණ පුද්ගලයා තුළින් බැහැරවීය හැකි බව මනෝවිද්‍යාවේ මතයයි. ආරය හා පාරිසරික සාධක මත සිදුවන්නා වූ පරිණතය තුළ ක්‍රමයෙන් පුද්ගල කායික සංවර්ධනය ද සිදු වේ. මනෝවිද්‍යාව තුළ අවධි සංකල්පය යටතේ විග්‍රහ වනුයේ මෙම පුද්ගල කායික සංවර්ධනයයි. එහි මූලික අවස්ථ හතරක් ප්‍රධානව දැකිය හැකි ය. 01)ලදරු අවධිය 02)ලමා අවධිය 03) නව යොවුන් අවධිය 04) වැඩිහිටි අවධිය යනුවෙනි. මෙයට අමතරව මුඛ අවධිය, අධෝමුඛ අවධිය, ලිංගේන්ද්‍රිය අවධිය යනුවෙන් පුද්ගල කායික වර්ධනය පිළිබඳ අවස්ථා තුනක් සිග්මන් ප්‍රොයිඩ් ඉදිරිපත් කොට ඇත. මනෝවිද්‍යාවේ පුද්ගල කායික සංවර්ධනය පිළිබඳ ප්‍රකට ඉදිරිපත් කිරීම සිදුකොට ඇත්තේ එරික් එරික්සන් විසිනි. ඔහුට අනුව පුද්ගල කායික වර්ධනයේ ප්‍රමුඛ අවස්ථා අටකි, බිලිදු විය, ඇවිදින විය, මුල්ලමා විය, මැදලමා විය, නවයොවුන් විය, යොවුන් විය, මධ්‍යම වැඩිවිය, පසු වැඩිවිය යනුවෙනි. මේ පිළිබඳ බෞද්ධ ආකල්පය විමසීමේ දී බුදුසමය තුළ ද පුද්ගල කායික හා මානසික වර්ධනය පිළිබඳ කරුණු දක්වා ඇත. කලලයේ නිර්මාණයේ සිට දරුවාගේ බිහිවීම දක්වා වර්ධනය පිළිබඳ සං.නි. ඉන්දික සූත්‍රයේ දැක්වෙන අතර, ඉන් අනතුරුව පුද්ගලයාගේ වර්ධනයේ දී මනෝවිද්‍යාවේ දැක්වූ ආරය හා පාරිසරික සාධකයන්ට අමතරව සාංසාරික කර්ම ශක්තීන්ගේ බලපෑම ද බුදුසමය අවධාරණය කරයි. එහි දී “මන්ද” හෙවත් දිලිඳුවිය, “ කිඩ්ඩාවිය” හෙවත් කුමාර අවධිය, වර්ණ අවධිය, බල අවධිය, ප්‍රඥා අවධිය, භායන අවධිය, පබ්භාර අවධිය, වංක අවධිය, මෝහමූල අවධිය, සයන අවධිය යනුවෙන් බුදුසමයේ පුද්ගලයාගේ කායික වර්ධනයේ ප්‍රමුඛ අවස්ථා දහයක් දක්වා ඇති අතර මෙයින් බොහොමයක් මනෝවිද්‍යාවේ වර්ගීකරණයන් හා සමාන බවක් දක්නට ඇත. අපගේ මෙම පර්යේෂණ පත්‍රිකාව මගින් පුද්ගල කායික වර්ධනය පිළිබඳ බෞද්ධ හා මනෝවිද්‍යාත්මක ආකල්ප තුලනාත්මකව අධ්‍යයනය කොට, එහි දක්නට ඇති සුවිශේෂත්වයන් හඳුනාගැනීමට අපේක්ෂිත ය.

ප්‍රමුඛ පද:කායික සංවර්ධනය, මානසික සංවර්ධනය, ආරය, මනෝවිද්‍යාව, බුදුදහම

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Quality of Machine Translation and the Role of Post-Editing

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Among various extents that computer technology contributes towards translation, Machine Translation (MT) is the most convenient procedure possible, where a text can be automatically translated using a computer programme. However, despite research and experiments expanding over half a century, Machine Translation has not reached the expectations and work is still going on to make it more reliable and to make its applicability wider. The aim of this study has been evaluating the quality of machine translation output and the role of post-editing. The study was conducted taking an informative text in English as the source text, Sinhalese as the target language, and Google Translate as the Machine Translation system. A group of twenty students reading Translation Studies for their degree at the Sabaragamuwa University of Sri Lanka involved in the study. Their task was to engage in post-editing of the translation output produced by Google Translate, if required. Further, they were requested to note whether a complete Human Translation (HT) of the text is required. According to their response, the target text contained both translation and language blemishes, which need to be eluded by post-editing assigned to a translator. However, no one was of the opinion that the text needs to be retranslated by a human. A few instances had been identified where the programme had failed to grasp the underlying meaning of the source language terms. With regard to the language, errors related to spelling, concord, and word division had been identified. The response was different from student to student, suggesting that the competence level of the post-editor is also of importance. Accordingly, the conclusion is made here that post-editing has a significant role in improving the quality of Machine Translation output.

Keywords: Google Translate, Human Translation, Machine Translation, post-editing, translation quality

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Efficacy of “Shodasa Gruha Prabeda” and “Pasalos Vadarum Gruha Pada” Theories in Reflecting the Physical, Mental, Economic and Social Wellbeing of Residents

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Background: The main doors of any building is given a higher importance as it acts as the major points of entry for both its users and universal energy. The theories of “Shodasa Dwara Prabeda” and “Fifteen (15) base method of door placement” are two of the most utilized concepts in the placement of main doors. Thus, the current study was conducted to evaluate the influence of “Shodasa Dwara Prabeda” and “Fifteen (15) base method of door placement” on the physical, mental, social and economic wellness of the residents in a house.

Methodology: A cluster of 20 households located within the Parakadeniya South Grama Niladhari Division (GND) of the Gampaha district secretariat Division were selected and the orientation of main doors and the section\|s within with the main doors of each house is\|are located were identified in accordance with “Shodasa Dwara Sthapana” and “15 base method of door placement”, respectively. Based on the findings, the impact of the present orientation and placement of the doors on the residing family was deduced and the deduced outcomes were statistically compared with the actual condition (evaluated via interviews with the household head), by using the Kruskal-Wallis test in SPSS (version 23).

Results: Combined application of both orientation and placement of the main doors, enabled to yield 75% (15/20) of highly accurate deductions with 20% (4/20) and 5% (1/20) moderate and less accurate deductions, respectively. The results of the Kruskal-Wallis test also indicated that the number of highly accurate deductions is significantly higher than the moderate and less accurate deductions ($p < 0.05$, at 95% level of confidence).

Conclusions: Overall results of the study suggests that the above theories cause a significant impact on the residents and are capable of yielding successful reflections of the physical, mental and economic status of the family. Therefore, the main door placement of households should be done with proper concern while respecting the above theories.

Key Words: Vastu, “Shodasa Dwara Prabeda”, “Fifteen (15) base method of door placement”

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The Effects of Task Based Techniques on the Development of Oral Competency in Low Proficient Learners

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Task based Language Teaching, one of the techniques come under Communicative Language Teaching, has been flourished by scholars like, David Nunan, M.P. Breen and Rod Ellis. Tasks which are meaning focused; make the ESL learners more self-directed and creative. The present research is an attempt to provide new evidence for the efficacy of task-based techniques in the development of oral competency among the ESL learners of tertiary level. The study attempted to answer the question as whether there is any statistically significant difference between the subjects' mean scores on the overall oral performance in English speaking test before and after the intervention programme of TBLT techniques in the ESL speaking classes. The study also aimed at evaluating whether there were any developments in the aspects of speaking skill like content, accuracy, fluency and pronunciation through the application of TBLT techniques in ESL teaching. Forty tertiary level ESL learners including nineteen males and twenty-one females from the Faculty of Management Studies and Commerce were selected and divided into two groups – Experimental and Control group - for the study. A task-based language teaching program of ESL speaking was developed by the researcher for the experimental group whereas the control group was taught in the conventional method for one semester. Since mixed methodology was adopted by the researcher to analyze the data, she used the research tools like, observation, interviews, questionnaires and speaking tests for the collection of data. A set of independent sample t-tests were conducted to find out the difference in the pre and post- tests. The results of the observation, interview and the questionnaire revealed positive effects towards implementing TBLT in ESL speaking classes and the independent sample t-tests revealed that the students of the experimental group, who were exposed to the task-based principles of teaching speaking, performed remarkably better than those of the control group in the final speaking post-test.

Keywords: Task-based language teaching, oral competency, language pedagogy, teaching methodology, tasks

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Lack of Knowledge in Understanding Colour: A Case Study Based on University Students

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As a basic element of art, color plays an indispensable role in visual arts and design. It sets the mood and evoke the desired feelings of an artwork or a design. Thus the knowledge about color should be an integral part of the teaching and learning process of visual art. This study examines the extent to which the school curriculum of Sri Lanka employs the fundamental knowledge about color to improve the understanding of school students who learn 'Painting' as a subject. In this study, a questionnaire and a practical test related to color was given to a sample of 30 university students who have chosen to study visual arts as one of their subject in their first year. The results of the practical test suggest that many of the students lack the basic knowledge and understanding about the attributes of color such as hue, shades, tints and tones. The result of the questionnaire suggests that nearly all the students have not properly learned about basics of color at school level due to the fact that the school curriculum of art (painting) does not contain the basic elements and principles of visual art. It can be assumed that many graduate teachers who follow the curriculum and the given time-table, are not encouraged to include this fundamental knowledge in the teaching process.

Keywords:basics of color, visual arts and design, Sri Lanka, school curriculum

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තාන්ත්‍රික 'මුද්‍ර' තුළින් නිරූපිත අර්ථ විග්‍රහයන් පිළිබඳ අධ්‍යයනයක්
ඩී.එම් පියුම් දිසානායක¹

සංකේත භාවිතය තන්ත්‍රයාන සම්ප්‍රදායේ සුලබව දක්නට ලැබෙන ලක්ෂණයකි. සංකේත භාවිතය අනෙකුත් බෞද්ධ සම්ප්‍රදායන් තුළ ද දක්නට ඇතත් තන්ත්‍රයානික සංකේත භාවිතය තුළ විවිධත්වයක් හා අසාමාන්‍යතාවක් විද්‍යමාන වේ. ඕනෑ ම දර්ශනයක සංකේත භාවිත කරනු ලබන්නේ කිසියම් අර්ථයක් තිවු කොට දැක්වීමට හා වක්‍ර ලෙස දැක්වීම යන කරුණු මුල් කරගෙන ය. නමුත් තාන්ත්‍රික සංකේත භාවිතාව තළ

- මිනිස් මනසේ පවත්නා ගැඹුරු ලක්ෂණ
- බෞද්ධ සංස්කෘතිය හා සම්බන්ධ කරුණු
- සුවිශේෂී ආගමික අර්ථයන් නිරූපණය කිරීමට

මෙම සංකේත භාවිතා වී ඇත. ඒ අතර ප්‍රධාන තැනක් ගන්නා මුද්‍ර භාවිතය තන්ත්‍රයානයේ සුවිශේෂී ආගමික සංකේත විශේෂයකි. තන්ත්‍රයානිකයෝ වචන රහිත ව සංකේතාත්මකව මුද්‍ර යොදාගනිමින් මනසෙහි පවත්නා ගැඹුරු ලක්ෂණ මනසින් මනසට සම්ප්‍රේෂණය කිරීමට මෙම මුද්‍ර භාවිතා කරනු ලැබීය. හස්තයේ ඇති ඇඟිලි වල විවිධ නැවීම මුද්‍ර ලෙස හඳුන්වයි. තව ද බුද්ධ ප්‍රතිමා වල වජ්‍රය, පද්මය, සණ්ඨාව, සංඛය, වැනි සංකේත ද මුද්‍ර ලෙස හැඳින්විය හැකි ය. ශ්‍රී චක්‍රසංවර තන්ත්‍රයේ කර්ම මුද්‍ර, ධර්ම මුද්‍ර, සමය මුද්‍ර, මහාමුද්‍ර, යනුවෙන් මුද්‍ර කිහිපයක් ද ඥානසිද්ධි නම් ග්‍රන්ථයේ වණ්ඩාලි, ඩෝම්බි, බ්‍රාහ්මණ යනුවෙන් මහා මුද්‍ර කිහිපයක් ද විග්‍රහ කෙරේ. එහි සංකේතානුසාරීව නිරූපිත මුද්‍ර වන්නේ දාර්ශනික පසුබිම පිළිබඳ මූලාශ්‍රයන් අනුසාරයෙන් විමර්ශනාත්මක අධ්‍යයනයක් මෙම පර්යේෂණයෙන් අපේක්ෂා කරනු ලබයි.

ප්‍රමුඛ පද - මුද්‍ර, තන්ත්‍රයානය, සංකේත, වජ්‍රය, පද්මය

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Social Sciences

The Factors Affected for the Deteriorating Livelihood Condition of Internally Displaced Persons (IDPs) in North East Region of Nigeria

(A Study of Three Selected IDP Camps in Maiduguri)

Ibrahim Baba¹

This research examined some of the factors affected for the deteriorating livelihood condition in which Internally Displaced Persons (IDPs) in the North-East Region of Nigeria are suffering from. It was carried out on three selected IDP Camps within Maiduguri in Borno State. The study was conducted through the use of quantitative research method. Closed ended questionnaire was administered on sixty respondents randomly chosen from the three IDP Camps involved in the study. Each of the camps was represented by twenty respondents. Collected data were analyzed using the descriptive statistical method. The study found out that poor governance, poverty and corrupt officials are some of the factors responsible for the deteriorating conditions of IDPs in the region. Strengthening good and responsive governance, effective sustainable poverty alleviation measures among IDPs as well as discipline and accountable officials were recommended for improving the condition of IDPs in the region.

Keywords: IDPs, Camps, Conditions, Deteriorating, North-East

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Sustainable Development and Sri Lankan Youth

K.M.H.V.Wijesinghe¹

Today, sustainable development has become one of the key priorities of national policy making of any country. Sustainable development focuses on a wide array of aspects ranging from the most basic socio-cultural aspects to more sophisticated political, economic, technological and scientific elements. Understanding the importance of sustainable development, on September 25, 2015, the UN members adopted a set of goals to end poverty, protect the planet and ensure prosperity for all as part of a new sustainable development agenda. In the context of Sustainable Development Goals, where does the Sri Lankan youth stand? Development can be accelerated when the majority of youth in any country are able to make significant contributions to economic, social and political life in a way that lifts countries out of poverty, ensures greater stability and promotes healthier societies. (USAID, 2012). Against this backdrop, the study attempts to understand where Sri Lankan youth stand today and how can the youth be empowered in the context of attaining the following Sustainable Development Goals; 1) Ensure inclusive and quality education, 2) promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, 3) Achieve gender equality and empower all women and girls, and 4) promote peaceful and inclusive societies for sustainable development. Basically, this research is a case study that looks into the relationship between the youth in Sri Lanka and Sustainable Development Goals. This is a qualitative research and the main source of data collection would be secondary data collected from various reports, internet, internationally recognized indices, books and other sources. As far as the findings of the research are concerned, the study has found the interdependent relationship between sustainable development and youth. However, this relationship has not been properly understood by all parties of the society, leading to a marginalization of the youth. Thus, the study has identified what is simply identified as PI approach (P=Proactive and I= Independent) to get the youth directly involved in the process of sustainable development.

Keywords: Sustainable development, Youth, Sri Lanka, gender equality, decent work

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User Delinquency in Law College Library, Sri Lanka: Perception of the Students

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User malpractices of Library materials by highlighting, underlining, removing papers/parts of the page, binding barcode labels, call numbers labels and damaging or defacing library materials is a threat to the library collection. Such practices can be describe as abusing of the library materials. According to the stock count carried out in (2017), 78 books (out of 4320) were highly abused and removed from the lending collection in the library. Therefore this survey was conducted with following objectives; to identify the various forms of abuse, to identify reasons for the abuse and to identify the possible solutions to protect the library collection. The survey was conducted by using questionnaires with close and open ended questions. Students (75) were selected for the study and 69 responded and the rate was 92% from years of first year, second year and final year.

The respondents gave their answers to the forms of abusing library materials mainly tearing away pages, writing notes inside text books, highlighting/underlining the pages, mutilation, hiding, of books. According to the reasons for the abuse of the library materials, 65% of students mentioned that rare materials not allowed to be photocopied, 68% claimed the inadequate numbers of copies and 59% indicated high cost of photocopying charges. The respondents proposed a variety of strategies to protect the collection too. The study recommended proper orientation to users. The number of copies of demanded text books should be increased. Improving of photocopying services of the library. Introduce and electronic system as RFID machines. Regularly reviewed set of library instruction should be drawn.

Keywords: User delinquency, Abuse of library materials, Mutilation, Malpractices of readers, Law collection.

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**අනුරාධපුර යුගයේ රාජ්‍ය පාලන කටයුතු කෙරෙහි රාජකීය කාන්තාවගේ දායකත්වයේ ස්වරූපය පොළොන්නරු යුගය වන විට දී කෙබඳු වීද ?
(ප්‍රාථමික මූලාශ්‍රය ඇසුරින් කෙරෙන අධ්‍යයනයකි)
පී.ජී.ආර්.ජේ.එන්. හර්ෂණී.¹**

ශ්‍රී ලාංකේය ඉතිහාසය තුළ වැදගත් අවධියක් වශයෙන් අනුරාධපුර යුගය සැලකේ. මන්දයත් ප්‍රථම රාජධානිය බවට අනුරාධපුරය පත් වන හෙයින් මෙන් ම එය සෑම අංශයකින් ම දියුණු සහායත්වයක් හෙළිකරන හෙයින්. විජය කුමරුගේ පැමිණීමත් සමඟ ලාංකේය ඉතිහාසය වෙනස් මඟකට යොමුවුණි. කෙසේද යත් විජය කුමරුට ලක් රජය ලබාදීමට කුවේණි නම් යක්ෂ ගෝත්‍රික කාන්තාව සහය දක්වා ඇත. ඉන් අනතුරුව රාජාභිෂේකයේ දී ක්ෂත්‍රිය කුමරියකගේ අවශ්‍යතාව මතුවිය. රාජකීය කාන්තාවන් නිරන්තරව සිය ස්වාමියන් ආරක්ෂා කිරීමට ප්‍රයත්නය දැරූ බවත් ඇතැම් අවස්ථාවල දී රාජ්‍ය පාලනයෙන් සිය ස්වාමියා ඉවත් කර වෙනත් අය එම තනතුරට පත්කිරීමට කටයුතු කළ බවත් හෙළි වේ.

මෙම පර්යේෂණයේ අරමුණු වන්නේ රාජ්‍ය පාලන කටයුතුවලට කාන්තාවගේ දායකත්වය කුමන ආකාරයකින් සිදුවී ද යන්නත්, රාජාභිෂේකයේ දී කාන්තාවට හිමි වූ ස්ථානයත්, අනුරාධපුර යුගයේ රාජ්‍ය පාලන කටයුතුවලට රාජකීය කාන්තාවගේ දායකත්වය පොළොන්නරු යුගය වන විට දී කෙසේ වූයේ ද යන්නත් හෙළිකර ගැනීමයි. මෙහි දී ක්‍රමවේදය වශයෙන් පර්යේෂණ මාතෘකාවට අදාළ ප්‍රාථමික සාහිත්‍ය මූලාශ්‍රය මෙන් ම ශිලා ලිපි ඔස්සේ කරුණු ඒකරාශී කරනු ලැබිණි.

පොළොන්නරු යුගයේ දී සෙනෙවියන්ගේ බලවත්වීම නිසා රාජකීය කතුන් සිහසුනට පත් කරලීම සිදු කළ බව පෙනීයයි. අනුරාධපුර යුගයේ දී මෙන් නොව පොළොන්නරු යුගයේ දී රාජකීය කතුන් කෙටිකලක් වුවත් සාර්ථකව පාලන කටයුතු කළ බව මූලාශ්‍රයවලින් හෙළිවේ. අනුරාධපුර යුගය ආරම්භයේ සිට ම ක්ෂත්‍රිය කුමරියකගේ අවශ්‍යතාව රජුන් සතු වූ බවත් රාජකීය කතුන් පාලන කටයුතුවලදී වැදගත් තැනක් හිමි කරගත් බවත් අනුරාධපුර යුගයේ රාජකීය කතුන්ගේ දායකත්වය පොළොන්නරු යුගයේ දී සෙනෙවිවරුන්ගේ බලවත්වීම හා ඇතැම් අවස්ථාවල දී ප්‍රබල පාලකයෙක් නොමැතිවීම නිසා පැවති වාතාවරණය අනුව බලයට පත් වූ බවත් අනුරාධපුර යුගයට වඩා පොළොන්නරු යුගයේ දී රාජකීය කාන්තාවන්ගෙන් සැලකිය යුතු සේවයක් සිදු වූ බවත් අනාවරණය කරගත හැකි විය.

ප්‍රමුඛ පද : අනුරාධපුරය, පොළොන්නරුව, රාජකීය කාන්තාවන්, දේශපාලනය, රාජ්‍ය පාලනය

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**පැරණි ශ්‍රී ලංකාවේ පැවති දේපළ අයිතිවාසිකම් පිළිබඳ විමර්ශනයක්
(ක්‍රි. පූ. 3 වන සියවසේ සිට ක්‍රි. ව. 13 වන සියවස දක්වා ශිලාලේඛන ඇසුරින්)
යූ. ඩී. පී. ටී. කරුණාරත්න¹**

ශ්‍රී ලංකාවේ සමාජ, ආර්ථික හා දේශපාලන ක්ෂේත්‍රයේ වෙනස්වීම් හා එහි පරිණාමයේ හේතු මත ස්වාධීනතා වශයෙන් සමාජයේ ව්‍යවහාර වන අයිතිවාසිකම්වලින් සැලකිය යුතු ප්‍රමාණයක් පසු කාලය වන විට ලිඛිත, නීතිගත අයිතියක් බවට පරිණාමය විය. එම අයිතිවාසිකම් අතරින් දේපළ පිළිබඳ අයිතිය ද මූලික වේ. මෙම නීතිරීති පැරණි ශ්‍රී ලංකාවේ ක්‍රි. ව. 8 හා 9 සියවස වන විටත් පැහැදිලිව ම නීතිගත ව තිබූ බවට සාධක ශිලාලේඛන අධ්‍යයනයෙන් පැහැදිලි වේ.

මෙම පර්යේෂණයේ මූලික අරමුණ වන්නේ අතීතයේ දේපළ අයිතිවාසිකම් පිළිබඳ විමර්ශනය කිරීමයි. ඒ සඳහා ප්‍රස්තුත කාලය වශයෙන් ක්‍රි. පූ. 3 වන සියවසේ සිට ක්‍රි. ව. 13 වන සියවස දක්වා ශිලාලේඛන අධ්‍යයනයට බඳුන් විය. මෙම අධ්‍යයනයේ දී මූලික වශයෙන් ශිලාලේඛන ප්‍රාථමික මූලාශ්‍රය ලෙස යොදාගත් අතර ද්විතීයික මූලාශ්‍රය ද ඇතැම් කරුණු විස්තර කිරීමේ දී යොදාගනු ලැබුණි.

අතීතයේ දී ගිහි පැවිදි දෙපිරිසට පොදුවේ මෙන් ම පෞද්ගලිකව ද දේපළ අයිතිවාසිකම් භුක්තිවිදීමට ඉඩ කඩ ලැබුණු අතර දේපළ යනුවෙන් මෙහි දී අදහස් කරන්නේ පුද්ගලයෙකු සතු ඉඩම්, ගව මහීෂාදීන් හා නිවාස, යානවාහන මෙන් ම ධනය ආදී සියලු සම්පත් ය. මෙහි දී විශේෂයෙන් අධ්‍යයනය කරනු ලබන්නේ අතීතයේ මෙරට වැසියාට හිමි වූ ඉඩම් පිළිබඳ දේපළ අයිතිවාසිකම් පමණි. මෙම ඉඩම් අයිතිය ගිහි පැවිදි යන කොටස් දෙකක් යටතේ වර්ගීකරණය කර අධ්‍යයනය කර ඇත. මෙම ඉඩම් අයිතිය පාරම්පරිකව ද, වෙනත් පුද්ගලයෙකුගෙන් මිල දී ගැනීමෙන් හා රජු විසින් පමුණු වශයෙන් භුක්තිය ද ඇති ව කළ ප්‍රධානයන් වශයෙන් හිමි වූ බව මෙම පර්යේෂණයට යොදාගත් ශිලාලේඛන අධ්‍යයනය මගින් අවබෝධ කරගත හැකි වේ.

ප්‍රමුඛ පද :- ශිලාලේඛන, ගිහි, පැවිදි, ඉඩම්, අයිතිය

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අනුරාධපුර යුගයේ පැවැති සාම්ප්‍රදායික සංරක්ෂණ ක්‍රමවේද
ඩබ්ලිව්. ඒ. එල්. පී. දිල්හාරා¹

සංරක්ෂණය යනු භාග්‍යය අවම කර ගැනීම සඳහා යොදා ගන්නා ක්‍රියාමාර්ගයකි. එය පුරාවිද්‍යා ක්ෂේත්‍රයේ වැදගත් අංගයකි. අතීත මිනිසා විසින් ඉතිරි කරන ලද සංස්කෘතික පුරාකෘති විනාශ වුවහොත් එය ඉතිහාසය ගොඩනැගීමට ප්‍රබල බාධාවකි. එම නිසා අතීතයේ සිට ම ලෝකයේ වෙනත් රටවල මෙන් ම ශ්‍රී ලංකාවේ ද ස්වකීය මුතුන් මිත්තන් විසින් දායාද කරන ලද උරුමයන් රැකගැනීම සඳහා විවිධ ක්‍රියාමාර්ග අනුගමනය කර ඇත. එය සංරක්ෂණය යන සංකල්පයෙන් ම අදහස් නොවුණ ද පුරාකෘති ආරක්ෂා කිරීමේ යම් පිළිවෙතක් ලෙස සාහිත්‍ය හා පුරාවිද්‍යාත්මක මූලාශ්‍රය මගින් හඳුනාගත හැකි ය.

මෙම පර්යේෂණයේ අරමුණ වූයේ අනුරාධපුර යුගයේ පැවති සාම්ප්‍රදායික සංරක්ෂණ ක්‍රමවේද පිළිබඳව විමර්ශනාත්මක අධ්‍යයනයක් සිදු කිරීමයි. දත්ත රැස් කිරීම සඳහා ප්‍රථමක මූලාශ්‍රය හා ද්විතීයික මූලාශ්‍රය යොදා ගනු ලැබී ය. මූලාශ්‍රය ඇසුරෙන් ලද තොරතුරු අනුව ශ්‍රී ලංකාවේ සාම්ප්‍රදායික සංරක්ෂණ ක්‍රමවේදයේ ආරම්භක අවස්ථාව සංසමිත්තා තෙරණිය ශ්‍රී මහා බෝධිය වැඩම කරවන ලද නැවෙහි කුඹගස, සුක්කානම, හබල වැනි කොටස් ආරක්ෂා සහිතව තැන්පත් කිරීම සඳහා සිරිවඩ්ඩ, වූලාංගණ, මහාංගණ නමින් මන්දිර තුනක් ඉදිකිරීම බව හඳුනාගත හැකි විය. ඉන් පසුව ද විවිධ රාජ්‍යය යුගයන්හි දී එබඳු පුරාකෘති ආරක්ෂා කිරීමට විවිධ විධිවිධාන යෙදූ බව ද හඳුනාගත හැකි විය.

ලක්දිව පුරාණ රජවරු පුරාකෘති සංරක්ෂණය කිරීම සම්ප්‍රදායක් ලෙස සිදුකර ඇත. රාජ්‍යත්වයට ආශීර්වාද පතා, දේශපාලනික වශයෙන් ස්ථාවරත්වයට පත්වීම, සතුරන් මැඩීම, දිර්ඝායුෂ ප්‍රාර්ථනා කිරීම වැනි හේතු මත සංරක්ෂණ ක්‍රියාමාර්ග අනුගමනය කොට ඇත. සෑම රජෙකු ම තමන්ට පෙර රජුන් විසින් සිරිතක් ලෙස සිදු කළ සංරක්ෂණ කටයුතු ස්වශක්තිය මත නැවත නැවත සිදු කොට ඇත. මේ අනුව අනුරාධපුර යුගයේ භාවිත කළ සාම්ප්‍රදායික සංරක්ෂණ ක්‍රමවේද ලෙස ප්‍රතිසංස්කරණය කිරීම, නැවත ගොඩනැංවීම, නව එක් කිරීම් හා නඩත්තු දීමනා යනාදිය පෙන්වාදිය හැකි ය. සංරක්ෂණය යන සංකල්පයෙන් ම නොවුණද අනුරාධපුර යුගයේ සිටි බොහෝ පාලකයින් එවැනි සංරක්ෂණ ක්‍රමවේද භාවිත කළ බව මූලාශ්‍රය ඇසුරෙන් හඳුනාගත හැකි ය.

ප්‍රමුඛ පද - අනුරාධපුර යුගය, පුරාකෘති, සාම්ප්‍රදායික, සංරක්ෂණය, ක්‍රමවේද

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The Problem of Irrigation Water Supply for Paddy Lands: The Case of Right Canal Zone of Huruluwewa Scheme

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Water supply is main character for paddy cultivation in dry zone of Sri Lanka. Providing adequate irrigation water supply for agriculture has become a problem. There is no proper and efficient irrigation water management at present. The main aim of this research is to study of factors regarding to the problem of water supply for paddy lands in Huruluwewa irrigation scheme in Anuradhapura District in Sri Lanka. There are two main canal zones in Huruluwewa scheme. Mainly Right Canal Zone is a largest and having problem of water management. Therefore, Right Canal Zone was selected to as sample area the study. The right canal zone of Huruluwewa scheme and farmers have been selected in 5% sample population, those are faced problem in farmer organization in Huruluwewa first part(14 person), central part (16 person) and last part of Huruluwewa right side irrigation canal(10 person). Primary data were gathered through questionnaires informal Interviews and field observations The main method of statistical of Excel software has been used. The findings revealed that 92.5% famers said that canal structures are not proper construction. The finding also revealed that not proper maintains of canal system. The weaknesses of farmers, the problems of the fields and the problems of the institutions, these problems have been identified. According to these facts there is no proper irrigation of water supply for paddy lands. To minimize these problems there should be institutional principals, paying attention and acts of farmer organizations level produce proposals for these problem.

Keywords: Irrigation Water supply, Irrigation System, Agriculture, Farmer Organization, Huruluwewa.

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මධ්‍යකාලීන යුගයේ දාර්ශනික පසුබිම

එල්.එල් ජේ.ද සිල්වා විජයරත්න¹

මධ්‍යතන යුගයේ ප්‍රබලතම බුද්ධි ප්‍රවාහන යාන්ත්‍රණය කිතු දහමයි. මෙහිලා මනුෂ්‍ය චින්තනය නිදහස් ලෙස හසුරුවා සත්‍ය ලබා ගැනීම නොව විශ්වාසය තුළින් තේරුම් ගැනීම වැදගත් ලක්ෂණයක් විය. පස්වන සියවසේ ඇරිස්ටෝටලියානු දර්ශනයේ ආභාසය ලැබූ ජස්ටීනියානු ගුරුකුලයේ ආරම්භකයා වන ජස්ටින් (ක්‍රි.ව 105-165) පළමුවරට දර්ශනය හා ක්‍රිස්තියානි ධර්මය අතර ධනාත්මක ප්‍රතිචාරයක් දක්වනු ලැබී ය. මධ්‍යතනික යුගයේ දාර්ශනික පසුබිම නිර්මාණය කිරීම සඳහා ස්ටොයික්වාදය, එපික්‍රුරියානුවාදය මෙන් ම සංශයවාදය යන දාර්ශනික සම්ප්‍රදායන් කැටිකොට ගොඩ නැගුණු හෙලනිස්තික (Hellenistic) දර්ශනය පදනමක් විය.

මෙම පර්යේෂණයෙන් විමර්ශනයට ලක් කරන්නේ මධ්‍යතන යුගයේ දාර්ශනික පසුබිම කෙසේ වී ද යන්න පිළිබඳවය. එය පර්යේෂණ ගැටලුව බවට පත් වේ. තවද මෙම පර්යේෂණය සිදු කිරීම සඳහා මූලාශ්‍රය අධ්‍යයනය පාදක විය. විශේෂයෙන් ප්‍රාථමික හා ද්විතීයික මූලාශ්‍රය කෙරෙහි අවධානය යොමුකරන ලදී. ක්‍රිස්තියානියේ ආරම්භය සිදු වූයේ ජුදා දහම පසුබිම් කරගෙන ය. නාසරතයේ ජේසුස් නම් ක්‍රිස්තියානි දහමේ මූලාරම්භක ශාස්ත්‍රාන්වහන්සේ ජුදා ජාතිකයෙකු වූ අතර ජුදා දහම පූර්ණත්වයට පත් කිරීමට එතුමාගේ ඉගැන්වීම් ඍජුව බලපා ඇත. එපමණක් ද නොව මෙකල පැවති දාර්ශනික මතවාද, කිතුදහමේ දේවවාදී ආගමික සත්‍යතා පැහැදිලි කිරීමට යොදා ගත් නිසා ද, එලෙස ඉගැන්වීමේ කටයුතු සිදුකිරීමට ක්‍රිස්තියානු නිල පූජකවරුන් යොදා ගත් නිසා ද එම ඉගැන්වීම් ආගමික මතවාද යැයි හැඳින්වීමට බොහෝ දෙනා පෙළඹීමේ සත්‍යතාව සොයා බැලීම ද මෙහි අරමුණක් වේ.

අගොස්තීනුකුමාගේ දාර්ශනික ඉගැන්වීම් නව්‍ය වූ ක්‍රිස්තියානි දර්ශනයකට මග පාදන්නට විය. ඉන් ඇරඹී විප්ලවීය නව්‍ය අදහස් ශාස්ත්‍රීයවාදී දර්ශනය ලෙස (Scholastic Philosophy) හඳුන්වන්නට විය. අනතුරුව එළඹෙන කාලපරිච්ඡේදය මධ්‍යතනික දාර්ශනික ලෝකයේ අඳුරු යුගය ලෙස සලකයි. ක්‍රි.ව. 5 වන සියවසේ අග භාගයේ බටහිර රෝම අධිරාජ්‍යය බාබේරියානු ආක්‍රමණය හමුවේ බිඳ වැටීමත් සමඟ ම අඳුරු යුගය ආරම්භ විය. විශේෂයෙන් ඇරිස්ටෝටල්ගේ දර්ශනය තෝමස් ඇක්වයිනාස් විසින් නව මගකට යොමුකරවන ලදී. මේ අනුව තෝමස් ඇක්වයිනාස් ක්‍රිස්තියානි දේව ධර්මයේ "ආඥාදායකයා" බවට පත්විය. මධ්‍යතන යුගයේ දාර්ශනික සංකල්ප මොට විමට ඉඩ නොදී කටයුතු කිරීමට ප්‍රංශ හා ජර්මානු ගෝත්‍රික සංවිධාන වන මැරෝවින්වියානු අධිරාජ්‍යයත් මහා වාල්ස් රජුගේ නායකත්වයෙන් ඇරඹී කැරොලින්ජියානු අධිරාජ්‍යයත් අමීල මෙහෙවරක් සිදුකරන ලදී. ඇක්වයිනාස්හි තෝමස් ඇරිස්ටෝටලියානු ස්වභාවික දර්ශනවාදය (Natural Philosophy of Aristotle) මෙන් ම ඇරිස්ටෝටලියානු පාරභෞතිකවාදය ද (Aristotelian Metaphysics) හදාරන්නට විය.

ඒ සමඟ යුරෝපයේ හා මහා බ්‍රිතාන්‍යයේ සංශයවාදය (Skepticism)" මානවීයවාදය (Humanism)" දේශපාලන පිබිදීම් හා ආගමික පිබිදීම් ඇතිවන්නට විය. එය "ප්‍රතිසංස්කරණය" (Reformation) ලෙස හැඳින්විය. මෙම සිදුවීම් මධ්‍යතන යුගය අවසන් වීමට හේතු වූ බව නිගමනය කළ හැකි ය.

ප්‍රමුඛ පද : බටහිර දර්ශනය, මධ්‍යකාලීන දර්ශනය, ක්‍රිස්තියානි සංස්කෘතිය, ආධ්‍යාත්මිකත්වය, ආගමික විශ්වාස

¹දර්ශන අධ්‍යයන අංශයකැලණිය විශ්වවිද්‍යාලය

The Role of the United Nations & Major Powers in Recognition of Kosovo

M.S.T.Perera¹

There are a number of issues with regard to statehood in the contemporary international system. Although the recognition of states is a legal issue associated with international law, at present, it has become a political issue in the world. According to the international law, there are traditional and modern criteria to be satisfied in order to be considered as a state. In contrary, major powers in the international system together with the United Nations play a significant role in giving recognition to states. The United Nations and major powers such as the US and Russia are not willing to accept Kosovo as an independent state in the international system. The main objective of this study is to identify the reasons for the United Nations and Major Powers' reluctance to bestow recognition to Kosovo. In addition to that, the provisions in the international law in state recognition will be examined together with the role of the UN in giving recognition to states. This research is a qualitative research based on secondary data. The data analysis procedure is done through the case study method and the case of Kosovo which is not fully recognized as an independent state is used in the study. Finally after analyzing the case it is evident that Kosovo did not fully satisfy the international law provisions regarding the statehood criteria while Russia, China and Serbia strongly opposed granting recognition to Kosovo. According to the findings, all these entities are reluctant to grant recognition to Kosovo due to power politics. Russia is against Kosovo statehood as Russia considers itself as a regulator in the international arena showing its power to Ukraine and Western countries. To show its growing power, Russia uses the Serbian and Kosovo issue pretending that they are keen on Serbian interests while actually trying to protect its own position in the world. Likewise this paper pays attention mainly to the issue in Kosovo and the reasons for non-recognition of Kosovo.

Keywords: Recognition of States, International Law, United Nations, Major Powers, Statehood

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New Trends in Women’s Political Participation in the Middle East (Special Reference to Egypt)

Niluka Priyadarshani¹

The people’s uprising in the Middle East, which commenced in Tunisia, spread to many Middle East countries including, Egypt, Libya, Yemen and Syria. This turned the attention to many aspects like, Democracy, Social Fairness, Equality, Constitutionalism and Political Participation. Further it caused implementation thereof to a certain extent. New trends were seen in women’s political participation as a result of the rising of 25th January 2011 in Egypt. Consequently, 87 females were able to represent the masses out of its 596 representatives in the new Parliament. The percentage thereof is 15%. Female representation in Egypt was seen at a high level in comparison with the past. Therefore, the question here is that, what are the new trends in political representation in women in the Middle East. The objectives of this research is identification of impediments to women’s political participation in the Middle East and to look in to the history of women’s political participation. As methodology of this research, primary data and secondary data had been used. In order to collect primary data, structural interviews and non-Structural interviews methods are used. Although, the result of this research is, women’s political participation is at a very high level, the economic, social political and the religious situation, in the Middle East has caused limitation of women’s political participation. Therefore, remedial action to improve women’s political participation further action should be taken after identification of impediments thereon. The recommendations can be cited as short term and long term. That is Establishing a well-disciplined military service, freedom of speech and media should be established, strengthen electoral procedures to be more consistent with international standards, safeguard constitutional rights, the developed democratic political institutions should be established, a secular state should be established, promote political reconciliation.

Keywords: political participation, woman, people uprising, middle east, democracy

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Historical Novels as a Source in Constructing History of Sri Lanka

N.I.Nanayakkara¹

Historians as a rule hesitate or do not prefer to use soft sources viz; novels, short stories as those are not considered as more than literary pieces. In the nineteenth century it was highly accepted historical inquiry should be based on official documents. Nevertheless with the spring up of new directions in the twentieth century, there was an expansion of using primary sources in historical inquiry. Historical novels have proved that fiction can be a valuable adjunct to the work of historians in their discipline. Historical inquiries done in Sri Lanka mostly depended on primary sources mainly they are considered as official records. Novels can be as accurate as a history in telling what happened, when, how and where. The aim of the research is to understand the historical phenomena through novels while expanding the scientific methodology in historical inquiry. Library research has done in collecting data which covered both the primary and secondary sources. Particularly the research has analyzed the novels of Cristine Wilson's 'Bitter Berry', Lenard Wolf's 'Village in the Jungle' and Mayaranjan's Digāmadulle Ashcharya' in investigating the colonial and post-colonial periods of Sri Lanka. The research unsurprisingly suggests analyzing historical novels other than chronicles and official documents delineated the socio-cultural-economic structure of Sri Lanka. Primarily Bitter Berry portrayed the formation of social context and life style in the colonial period. Digamadulle Ashcharya is a novel encompassed the regional area of Digamadulla in the mid twentieth century which delineated the ethnic identities and the formation of the village. The analysis of the novels questioned and deconstructed the popular consciousness which hold up racial identities and social context in the colonial power of Ceylon. Using novels as primary sources give alternative approaches in history writings.

Keywords: Colonial power, Historical inquiry, Official documents, Primary sources, Racial identities

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Sustainability and Intersectionality: Review of National Environment Policy of Sri Lanka in the Light of the Charter of the Global Greens

A.N.Senadeera¹

A particular document related to environment named, Charter of the Global Greens (CGG) adopted in 2001. The core of the document sets out the principles that bind together Greens from around the world such as ecological wisdom, social justice, participatory democracy, nonviolence, sustainability, and respect for diversity. Basically, this study based this charter. Interestingly, this charter has not been much exposed for developing countries like Sri Lanka. In the context of Sri Lanka, there can be found policies and some political mandates and that concerned the notion of environment and sustainable development. Among these, the National Environment Policy (NEP) and Strategies in 2003 can be identified as an important policy.

The main objective of this comparative study is to analyze the CGG in the context of Sri Lanka with the NEP. The study tried to understand the similarities and differences between these two documents. Although, it is not fully feasible to have a comparison between a global charter and national policy on environment, it has been opened a new space to rethink about the selected national policy. In short, the principles of the CGG emphasized the socio-political impact on environment while the NEP largely concerned on the environment. In other words, The NEP can be marked as a policy which is mostly referred to environment-oriented circumstances such as environment protection.

The CGG claims the need for fundamental changes in people's attitudes, values, and ways of producing and living. Importantly, it proposed to promote a comprehensive concept of sustainability. This wide understanding about the notion of sustainability could create a linkage between environment and society. The NEP is mentioned that, "such a policy, in its implementation, will pave the way for sustainable development". Unlike the NEP, the CGG has been covered important environment factors like ecological wisdom, sustainability, and social factors like social justice, respect for diversity, and political factors like participatory democracy and nonviolence. In this sense, this paper tried to show some of the policy gaps that can be seen in the NEP. The first part of the CGG is used as a foundation since it has been provided a comprehensive idea and framework on sustainability and sustainable development.

Keywords: Charter of the Global Greens (CGG), the National Environment Policy (NEP), environment, sustainability, sustainable development.

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Using International Norms to Understand the Responsibility to Protect and Humanitarian Intervention: Case studies from Kenya and Libya

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The norm Responsibility to Protect (RtoP) has gained greater awareness and attention in the field of international relations due to humanitarian interventions, human rights violations, massive genocide and ethnic cleansing. The International Commission on Intervention and State Sovereignty coined the doctrine of Responsibility to Protect and it was further strengthened by the world summit in 2005. At present, Responsibility to Protect has explored the ways in which transforming the negatively perceived concept of right to intervene into a responsibility to react. The main objective of this study is to examine whether the nature of humanitarian intervention is replaced by the concept of responsibility to protect and whether the fulfillment of the three pillars of responsibility to protect functions properly. Furthermore the main objective was classified into several objectives examining the involvement of United Nations in responsibility to protect norm and the practice of responsibility to protect in contemporary world order. The study has been primarily conducted using secondary data and the study is a qualitative data analysis. Secondary data has been collected through books, journal articles, reports and academic publications. Two hypotheses have been constructed to examine the main purpose of the study; whether responsibility to protect norm is indirectly enhancing humanitarian intervention and whether the three pillars of responsibility to protect are fulfilled in contemporary world. Kenya and Libya have been selected as the case studies of the study. The findings of the study stipulates that humanitarian intervention has not been replaced by the establishment of responsibility to protect norm, but it functions under the limits of responsibility to protect due to international community assumes humanitarian intervention as a moral duty as long as it has no legal norm. Moreover, according to Kenya case the conflict situation was controlled through the second pillar in which the international community has the responsibility to assist the states in meeting the responsibility. The case of Libya has attracted severe criticisms in defining the RtoP. The involvement of United Nations on RtoP in contemporary world has also attracted successes and failures while practices of RtoP should be more transparent.

Keywords: Responsibility to Protect, Humanitarian Intervention, United Nations, Three Pillars, Kenya, Libya

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Identify the Travel Destination Attributes that Attract International Tourists to Visit Galle Tourism Zone

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International tourism has become the world's largest export earner in developed and developing countries including Sri Lanka. Sri Lanka entered the international tourism market in the 1960, however because of North and East separatist war and Southern political violence tourism showed a fluctuation demeanor. Hence, Sri Lanka unable to identify the attributes which are attract tourists to travel in destination. Sri Lanka is one of Asia's richest treasure troves of both natural and man-made wonders especially with seven World Heritage Sites. As the World Heritage Site Galle tourism zone is one of the traditional and powerful competitors in tourism market. When considering the competitive tourism market, identification of important travel destination attributes when choosing their prospective destination would be of great value to tourism planners. Therefore the objective of this study was identify the travel destination attributes that attract international tourists to visit Galle tourism zone. The research model was formulated and it postulates that international tourists' perception of important attributes in Galle impacts on their decision making in three ways as directly, indirectly - through influencing Galle overall image and indirectly - through influencing international tourists' overall satisfaction level with their trip to Galle, impact on international tourists' future decision on destination selection. Ten important destination attributes were identified by the literature review. International tourists, who visit the Galle tourism zone are the target population of this study. Sample size was 100 and structured questionnaire was distributed to participants who were randomly selected international tourists in Galle tourism zone. Factor analysis was used to identify the important destination attributes in Galle, which were formulated according to the three ways influences. The results show that, landscape in Galle, culture & religious value, hospitality, health, safety and relaxation are more important attributes in Galle. Also results concluded that, landscape, climate, culture & religious and service are more important to overall image of Galle.

Keywords: Destination Attributes, International Tourists', Galle Tourism Destination

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රුසෝ ගේ එම්ලේ කෘතියෙන් ඉදිරිපත් කෙරෙන ස්වාභාවධර්මීය අධ්‍යාපන සංකල්පය වර්තමාන ශ්‍රී ලංකාවේ ප්‍රාථමික අධ්‍යාපන ක්‍රමයට යොදා ගැනීමේ වැදගත්කම පිළිබඳ දාර්ශනික විග්‍රහයක්
එන්.ඒ.පී. අයි. ඩී . ජයපාල¹

එක්සත් ජාතීන්ගේ 70 වන මහා සමුළුවේ දී සම්මත වී ප්‍රකාශයට පත් කළ තිරසාර සංවර්ධන අරමුණු හා අභිමතාර්ථයන්හි සිව්වන අභිමතාර්ථය වූයේ වසර 2030 වන විට ලෝකය තුළ ගුණාත්මක හා පරිපූර්ණ අධ්‍යාපනයක් බිහිකිරීමයි. එකී අධ්‍යාපන අරමුණු තුළ ප්‍රාථමික අධ්‍යාපනයට මුල් තැනක් දිය යුතුයැයි එහි වැඩි දුරටත් දක්වා තිබුණි. ඒ අනුව වසර 2030 වන විට ලෝකය පුරා ගුණාත්මක ප්‍රාථමික අධ්‍යාපනයක් බිහි කිරීමේ වැඩසටහනට සමගාමීව ශ්‍රී ලංකාව තුළ ද ගුණාත්මක ප්‍රාථමික අධ්‍යාපනයක් බිහි කිරීමේ අවශ්‍යතාව පවතී. අධ්‍යාපන ප්‍රතිසංස්කරණ තුළ ප්‍රාථමික අධ්‍යාපනයට මුල්තැන දීම වැදගත් වන්නේ අනාගතයේ පරිපූර්ණ මානව සම්පතක් සමාජයට දායාද වීමේ මූලය ඇත්තේ, ප්‍රාථමික අධ්‍යාපනය තුළ වන නිසාවෙනි. ඒ අනුව තිරසාර සංවර්ධන සැලසුම් යටතේ ශ්‍රී ලංකාවේ අධ්‍යාපන ප්‍රතිපත්ති සකස් කිරීමේ දී ප්‍රාථමික අධ්‍යාපන සැලසුම් හි මූලික අරමුණ ලෙස අධ්‍යාපන අමාත්‍යාංශය දක්වා ඇත්තේ නිර්මාණශීලී, මානසික හා කායික සෞඛ්‍යයෙන් යුක්ත මනා පෞරුෂත්වයකින් යුක්ත දරුවෙකු බිහිකිරීම ඔවුන්ගේ අභිමතාර්ථය වන බවයි.

මෙම අධ්‍යනයේ දී අවධානය යොමු කරන්නට යෙදුණ මූලික අධ්‍යයන ගැටලුව නම්, ශ්‍රී ලංකාව තුළ අධ්‍යාපනයෙන් පරිපූර්ණ දරුවෙකු බිහි කිරීම සඳහා රුසෝගේ අධ්‍යාපන දාර්ශනික ඉගැන්වීම් තුළ එන ස්වාභාවධර්මීය අධ්‍යාපන සංකල්පය අදාළ කරගත හැකි ද? එසේ අදාළ කර ගත හැකි නම් ඒ කෙසේ ද යන්න විමසීමයි. ප්‍රංශ ජාතික අධ්‍යාපනඥයෙකු වූ රුසෝගේ 'එම්ලේ' නම් කෘතියේ දැක්වෙන ස්වාභාවධර්මීය අධ්‍යාපන සංකල්පය, දරුවන්ගේ මනස වර්ධනය වන සාර්ථක ම අවධියේ ඔවුන් සෘජුව විභාග කේන්ද්‍රීය ක්‍රමවේදයකට පුහුණු නොකර පරිසරය තුළින් දරුවන්ට අධ්‍යාපනය ලබාදීමේ වටිනාකම පෙන්වාදෙනු ලබයි. ඒ හරහා ඔවුන් සතු නිර්මාණාත්මක මෙන් ම තාර්කික හැකියාව වර්ධනය කිරීමේ ක්‍රමවේදයක් රුසෝ ඉදිරිපත් කරන අතර ළමයා පරිසරය, මිනිසා හා ද්‍රව්‍ය යන ත්‍රිවිධ ප්‍රභවයන් ඇසුරින් අධ්‍යාපනය ලැබිය යුතු බව පෙන්වා දෙයි. නූතන මනෝ විද්‍යාඥයින් ද පිළිගන්නා දැනුම හා ක්‍රියාව එකිනෙක සම්බන්ධ විය යුතු බව රුසෝ ද දක්වන අතර ඒ හරහා ක්‍රියාකාරී දැනුමක් ලැබිය හැකි බව ඔහු දක්වා ඇත.

රුසෝගේ මෙම ස්වාභාවධර්මීය ඉගෙනුම් සංකල්පය අධ්‍යයනය කිරීමේ දී එය මෙරට අධ්‍යාපන ක්‍රමවේදයන් උදෙසාද සාර්ථකව සම්බන්ධ කර ගැනීමේ හැකියාවක් පවතියි. නූතන දරුවන් තරඟකාරී අධ්‍යාපන රටාවෙන් යුක්තව පරිසරයෙන් ඇත් වීම මූලික කරගනිමින් ඔවුන් ශාරීරිකව ක්‍රියාත්මක නොවීමෙන් මුහුණ දී ඇති අවදානම් සහගත බෝ නොවන රෝගයන්ගෙන් වළක්වා ගැනීමට මෙම අධ්‍යාපන ක්‍රමය සාර්ථක ක්‍රමවේදයකි. ළමා මනස වර්ධනය ආරම්භ වන අවධියේම ඔවුන් විභාග මූලික අධ්‍යාපනයකට හුරු නොකර පරිසර සංවේදීතාව සහිත ප්‍රායෝගික අත්දැකීමෙන් ඉගෙනගන්නා දරුවෙක. වශයෙන් අධ්‍යාපනය ලැබීමට ඉඩ සලසා දීම සමාජයීය අවශ්‍යතාවකි. ඒ හරහා ශ්‍රී ලංකාවේ ප්‍රාථමික අධ්‍යාපනයේ මූලික අරමුණ සාක්ෂාත් කර ගැනීමට හැකියාව ලැබෙනු ඇත.

ප්‍රමුඛ පද- තිරසාර සංවර්ධන අරමුණු, ස්වාභාවධර්මීය අධ්‍යාපන ක්‍රමය, ප්‍රාථමික අධ්‍යාපනය, මානසික ආතතිය, ප්‍රායෝගික අත්දැකීම්

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A Statistical Review about Teaching Statistics at University Level and the Job Availability for the Graduates with Degree in Statistics in Sri Lanka

Anuradha Gamage¹

Today Statistical Science holds a major place in both education and industry. Sri Lanka has universities which award bachelor degrees mainly in Statistics. Main objective of this study is to analyze the job availability for the graduates who hold a degree in statistics or has followed statistics as a major subject in their degree programs. It was considered 15 government universities and 5 private universities to analyze how the statistics is being taught as a subject, as well as the 10 organizations from public sector and 10 organizations from private sector have been selected for analyze the job availability for statistics graduates. Job availability was measured using the job advertisements published and posted by these public and private institutes or the organizations through paper advertisements and online job search portals. This study was carried for the year 2016. Sample of 100 graduates who have completed bachelor degree in 2015 in government and private universities were selected and they were given a questionnaire to be filled. 62.5% of the graduates in the sample were employed by the time. Job availability was analyzed by searching paper advertisements and e-advertisements whether the required qualifications contains degree in Statistics. Descriptive statistics have been used for data analysis. According to the findings there are two main types of graduates produced with a degree in statistics. Job availability in private sector is comparatively 7 times larger than the government sector for the statistics degree holders. Statistics degree holders from science stream have more chance of getting government and private sector jobs since 90% of institutes require the graduates from science stream. It has been identified by the results that many of private and public organizations do not have clear understanding about the capability of these Statistics degree holders both are from Science and Arts streams. It could be found that although Sri Lankan universities produce many graduates, they do not have enough knowledge in practical statistical applications which is insufficient to work in an industry.

Keywords: Statistics, Job Availability, Graduates, Private Sector, Public Sector

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රාවය කාටුන්තුවලින් පිළිබිඹු වන ප්‍රකාශන හා මාධ්‍ය නිදහස

ජේ.ඒ. තරිඳු මාධව¹

සාමාන්‍ය සිදුවීමක් සියුම් උපහාස ආකාරයට අදින ලද සිතුවමක් කාටුන්තුවක් ලෙස සරලව අර්ථ දැක්විය හැකි ය. කාටුන් කිසියම් ආකාරයක ජනමත බලපෑමක් කරන කලාවක් වේ. ලංකාවේ ප්‍රථම කාටුන්තුව ජී.එස් ප්‍රනාන්දු විසින් 1931 දී ණිස්වදේශ මිත්‍රයා ට පුවත්පතට අදින ලද්දක් විය. ප්‍රකාශන නිදහස පිළිබඳ සලකා බැලීමේ දී රාවය පුවත්පතේ පළ කළ කාටුන් සුවිශේෂී ස්ථානයක් ගනියි. රාවය පුවත්පතේ ප්‍රකාශන නිදහස හා මාධ්‍ය නිදහස කඩ වීමේ දී අදින ලද ප්‍රථම කාටුන්තුව මාධ්‍යවේදී රිචර්ඩ් ද සොයිසා ඝාතනය හේතුවෙන් 1991 පෙබරවාරි 24 දින කලාපයේ පළ කරන ලද කාටුන්තුව වේ. මෙම පර්යේෂණයේ දී ප්‍රකාශන නිදහස හා මාධ්‍ය නිදහස කඩ වීම, මාධ්‍ය වේදීන් ඝාතනය කිරීම, මාධ්‍යයට බලපෑම් කිරීම, මාධ්‍ය වේදීන්ට තර්ජනය කිරීම, මාධ්‍ය වාරණය කිරීම, අණ පණත් හා කොමිසන් සභා ගෙනඒම, දේශපාලනය විසින් මාධ්‍ය හැසිර වීම, මාධ්‍යවේදීන් දේශපාලනයට නතුකර ගැනීම යන අංශ ඔස්සේ මාධ්‍ය හා ප්‍රකාශනයට බලපෑම් වූ අවස්ථාවල අදින ලද කාටුන් සැලකිල්ලට ගනියි. මෙම පර්යේෂණ සිදු කරන ලද්දේ රාවය පුවත්පත ආරම්භයේ සිට අද දක්වා ප්‍රකාශන නිදහසට හා සමස්ත මාධ්‍යයට බලපෑම් එල්ල වූ අවස්ථාවල දී ඒ හා සම්බන්ධ අදින ලද කාටුන් අධ්‍යයනය කිරීමෙනි. එම කාටුන්වල සංඥාර්ථ රූපී විග්‍රහයන් ද මෙම පර්යේෂණයට ඇතුළත් කොට ඇත. වැඩිදුරටත් රාවය පුවත්පතේ කතෘමණ්ඩලය හා සම්මුඛ සාකච්ඡා සිදුකර ලබා ගත් තොරතුරු හා එම පුවත් පතේ කාටුන් ශිල්පීන් නිර්මානකරණයේ අදහස් ද මෙම පර්යේෂණයේ දී අධ්‍යයන කර ඇත. මෙම පරීක්ෂණයට අනුව ප්‍රකාශන නිදහසට බොහෝ දුරට බලපෑම් කර ඇත්තේ එවකට පැවති රාජ්‍යය තන්ත්‍රය බව පෙනී යයි. එහි දී දේශපාලන යාන්ත්‍රණය සෘජු ලෙස ම බලපෑම් කර ඇති බව අධ්‍යයනයේ දී පැහැදිලි වෙයි. එම අවස්ථාවල ලිපිවලින් ඇතිකළ හැකි බල පෑමට වඩා විරුද්ධත්වය ප්‍රකාශ කිරීමට ඉතා සුක්ෂමව, විශාල අදහස් ප්‍රමාණයක් ජනමත කිරීමට, ප්‍රහසනාත්මක ලෙස කාටුන් උපයෝගී කර ගෙන ඇත.

ප්‍රමුඛ පදය: රාවය කාටුන්, ප්‍රකාශන හා මාධ්‍ය නිදහස, සංඥාර්ථ රූපී විග්‍රහය

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Appraising the Fine Motor Skill Advancement in Nurseries Special Reference to Gampaha Divisional Secretariat, Sri Lanka

Dulanja Ruwan¹

Physical development is the physical growth from birth to adulthood and the development of both gross and fine motor control of the body. Lack of physical development is a major concern in children. Physical development during preschool age has significant effects on social and psychological health of children. Major movement skills including fine motor, object control and body management provide a base for more advanced physical skills. Physical development, grow during early childhood and are necessary for complex activities at adulthood. Also preschool children activities should be enjoyable and contain fine motor activities. Therefore, it seems that an effective physical development program for preschool children needs to be developmentally appropriate for children in this age range. Furthermore, physical, emotional and psychosocial needs of children should be considered in development of suitable physical development program for these children. Excellently physical development programs in nursery schools should be conducted by trained instructors. This research involves discovering how the “fine motor skill development of children in Gampaha divisional secretariat, Colombo District, Sri Lanka”. The study was logically assumed by the researcher by focusing on the problem how physical growth of children who are studding in kindergarten level is differ through fine motor skill. The key study is to show the physical development level of kindergarten children in Gampaha Division. Sample area of the research was Gampaha GN divisions of Gampaha divisional secretariat. The stratified random sampling method was used to select students as well as the sample size was 400. Researcher had been used Ages and Stages questionnaire (ASQ) which was suggested by the American Academy of Neurology, and the child neurology. Data were analyzed with SPSS 21.0 and the deduction were made through the study after detailed scientific analysis of data. the research revealed that the current physical development level of kindergartens in Gampaha divisional secretariat. In Gampaha division the Fine motor development level appears to be on schedule among 73.5% and for 20.8% need to provide learning activities and monitoring as well as for 5.8% further assessment with a professional may be needed.

Keywords: Physical Development, motor skills, fine motor skill, motor activities, Gampaha GN division

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A Comparative Study on Anger Management in Buddhism and Western Perspective

Anuradha Dissanayake¹

American Psychological Association (APA) has defined anger as “completely a normal, usually healthy, human emotion. But, when it gets out of control and turns destructive, it can lead to problems-problems at work, in the personal relationships, and in the overall quality of individuals’ life”. *Therefore, psychologically uncontrollable anger will engulf the individual, family and the society which will lead to destructive behaviors.* The main objective of this paper is to prove up to date validity of Buddhism even up to the 21st century with the evidence of scientific research and provides an insight to anger management in both Buddhist and Western perspective. Buddhist teachings were searched referring to *Suttha pitaka* including *Vitakkasaṅṭhāna Sutta* of *Majjhima Nikāya* and *Āghāta Paṭivīnaya Sutta* in *Aṅguttara Nikāya*. The realistic study of the Special Treatment and Rehabilitation Centre of Kandakadu by the instructions of Lieutenant Colonel Pradeep Perera where the 220 drug addicts who have aggressive mind and revengeful thoughts are transform into peaceful individuals through 1-2-month period time by implementing motivational strategies, on 2nd month by the breakdown strategy through mixture model and most importantly by transforming revenge into compassionate via Buddhist techniques including mindfulness meditation-*vipassana* was taken into further evaluation. Recent research in parapsychology, scientific aspects of Buddhist Pirith Chants as a remedy to anger management and the latest research on Neuroplasticity of the brain are discussed in depth.

According to the Western Perspective, Charles Spiel Berger, PhD states that “Anger is an emotional state that varies in intensity from mild irritation to intense fury rage”. Further Dr. Weisinger clarified that the cause of anger is due to the threat to one of our basic needs or mature needs including identity, recognition, achievement and social affiliation. Different techniques in the western counseling including cognitive reconstruction for maladaptive thoughts, using humor-laughing therapy, relaxation, brainstorming, avoiding, positive relief, time outs and non-violent communication will be discussed in depth. The war and terrorism, ethnic conflicts are some of the current global crisis which can be determined within the society due to anger. It is revealed that many western psychologists and therapists have integrated Buddhism with Western psychotherapy in the field of meditation and mindfulness.

Keywords: Anger Management, *Āghāta Paṭivīnaya Sutta*, Neuroplasticity, Trigger, *Vitakkasaṅṭhāna Sutta*

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The Implementation of Management Information System and its Impact on Performance Management of Employees: With Special Reference to Apparel Industry of Sri Lanka

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Performance Management (PM) is an assessment of efficiency of a worker by the respective persons in the organization or providing an accurate and relevant rating of an employee performance as compared to pre-established criteria. All most all organizations included to the Apparel Industry tend to measure the level of performance of an employee as it is a major criteria for salary increments or any other perquisites. However the managers facing a critical situation as majority of employee grievances are regarding injustice of PM. Thereby the general objective of this study is to suggest some ways to the management to enhance the quality and the transparency of PM through effective implementation of Management Information System (MIS) that enable sound awareness of information to all levels of employees as well as for the managers. Criteria of effectiveness of PM is with whether the system generate accurate outcomes, generating quick reports, employees can see overall performance, evaluation status and performance evaluation discussions. The unit of analysis was at individual employees. The target population of the study was consist of employees both managerial and non-managerial who have worked with the similar organization since the organization not experiencing the MIS in PM. The study selected 150 employees by stratified random sampling technique from a particular organization included to the apparel industry of Sri Lanka. This study has proceeded with the questionnaire to collect data as primary data. Descriptive analysis, and chi-square analysis were used to analyze data with the limitation of considering the effect of implementation of MIS only on one management practice. As the results indicated according to the comparison made before and after implementing the MIS to the particular organization there is a significant reduction in grievances from employees regarding PM procedure. Similarly the employees are satisfied towards PM as the dissemination of information relevant to PM of each employee is transparent. Thereby the PM practices that measured with the effectiveness of timeliness, appropriate content, system quality, format and other benefits of using MIS as an administrative tool have been accomplished by the organization after the execution of MIS for PM.

Keywords: Management Information System, Performance Management, Apparel Industry

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පිලිකා රෝගීන්ගේ මානසික සුවතාව සඳහා සංගීත ප්‍රතිකාර භාවිතය

යූ. ඩබ්. එල්. ප්‍රනාන්දු¹

පිලිකාව (Cancer) යනු, මිනිස් සිරුරේ සෛලවල ඇතිවන රෝගී තත්වයක් හෙවත් අසාමාන්‍ය ස්වාභාවයකි. මෙලෙස ඇතිවන සෛලීය අසාමාන්‍යතාවයන් විවිධ ශරීර කොටස් පදනම් කරගෙන විවිධ නම්වලින් යුක්තව පිලිකා වර්ග සියයකට අධික සංඛ්‍යාවක් ලෙසින් හඳුනාගත හැකි වේ. නූතන වෛද්‍යවරුන්ගේ පිලිගැනීමට අනුව මිනිස් සිරුර හා මනස අතර අන්‍යෝන්‍ය සම්බන්ධතාවයක් පවතී. ඒ අනුව ඇතැම් මානසික තත්ව හේතුවෙන් කායිකව රෝගීවීමත් ඇතැම් කායික තත්ව හේතුවෙන් මානසිකව රෝගී වීමත් සිදුවන බව මේ සම්බන්ධයෙන් සිදුකරන ලද බොහෝමයක් පර්යේෂණවලින් සනාථ වී ඇත. එබැවින් පිලිකා නිවාරණය සඳහා ද මානසික හා කායික ස්වාභාවය ඍජුව ම බලපානු ලබයි.

මනෝප්‍රතිකාර (Psychotherapy) යනු, මනස සුවපත් කිරීම යන්නයි. මෙහි දී මානසික ගැටලු සහ මානසික අක්‍රමතාවන්ට ප්‍රතිකාර ලබාදීමක් සිදු කෙරේ. එමගින් පුද්ගලයා තුළ පවත්නා අසංවිධානාත්මක මානසික ගැටලු සහ ඒවාට අනුගතවීමේ දී හෝ මුහුණදීමේ හෝ දී ඇතිවන අපහසුතා, මනෝවිද්‍යාත්මක විධික්‍රම උපයෝගී කරගනිමින් විසඳා ගන්නා ආකාරයත් ඒවා දරාගැනීමේ කුසලතාවත් වර්ධනය කිරීම සිදු කරනු ලබයි. මෙය එක්තරා අන්දමක චිත්තවේගාත්මක හා වර්යාත්මක ප්‍රතිකර්මයකි. එමෙන් ම, සංගීත ප්‍රතිකාර (Music therapy) යනු, මානසික අපහසුතා දුරුකරලීම සඳහා සංගීතය බහුවිධ ක්‍රමයන්ගෙන් යොදා ගැනීමකි. ඒ අනුව පිලිකා රෝගීන් තුළ බහුල ලෙස දක්නට ලැබෙන මානසික අක්‍රමතා සඳහා සංගීත ප්‍රතිකාර භාවිතය පිළිබඳව මෙම පර්යේෂණය මගින් අධ්‍යයනයට ලක් කෙරේ.

මෙම අධ්‍යයනයේ දී ප්‍රධාන ලෙස ම පහසු නියැදුම් ක්‍රමය යටතේ තෝරාගත් පිලිකා රෝගීන් 30 දෙනෙකුගෙන් යුත් නියැදියක් යොදා ගන්නා ලදී. අනතුරුව සංගීත ප්‍රතිකාරය ප්‍රායෝගිකව සිදු කර නිරීක්ෂණය සහ සම්මුඛ සාකච්ඡා ක්‍රමය ඇසුරෙන් ද පූර්ව මනෝවිද්‍යාත්මක පර්යේෂණවල දත්ත හා නිගමන අධ්‍යයනය කිරීම තුළින් සංඛ්‍යාත්මක සහ ගුණාත්මක පර්යේෂණ ක්‍රමවේදය ඔස්සේ මෙම පර්යේෂණය සිදු කරන ලදී. මෙම අධ්‍යයනයේ දී අනාවරණය වූ තොරතුරුවලට අනුව පිලිකා රෝගීන් තුළ ආතතිමය ස්වාභාවය, කාංසාමය තත්වය සහ විෂාදිත සහලක්ෂණය වැනි උග්‍ර විෂාදීය අවස්ථා පවතින අතර එම තත්ව හේතුවෙන් ඇතිවන මානසික ගැටලු සහ පීඩාවන් නිරාකරණය සඳහා සංගීත ප්‍රතිකාර ක්‍රම ඵලදායී බව අනාවරණය වේ.

මේ අනුව මෙම අධ්‍යයනයෙන් පිලිකා රෝගීන්ගේ මානසික පීඩනය සහ අක්‍රමතා අවම කර මානසික සුවපත්බවක් ඇති කරවීම සඳහා සංගීත ප්‍රතිකාර සහ ඒ සමඟ ම කෙරෙන සංයම අභ්‍යාස ධනාත්මක ලෙස ඉවහල් වන බව නිගමනය කළ හැකි වේ.

ප්‍රමුඛ පද : පිලිකාව, මානසික සුවපත්බව, මානසික අක්‍රමතා, මනෝප්‍රතිකාර, සංගීත ප්‍රතිකාරය

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Correlates of Employees' Psychological Contract Fulfillment: A Proposed Study Model

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Leader member exchange (LMX) theory (2016) provides a framework to understand the formation of vertical dyadic work place relationships between leaders and subordinates. The goal of LMX is to explain the effect of leadership on members, teams and organizations. Available literature acknowledges that multiple work-related consequences including psychological contract fulfillment which is understood as a relational and dynamic phenomenon that emerges and develops in every employment relationship would depend on the way employees are being treated by their leader. Meta analysis of the theory has outlined three categories of antecedents as leader characteristics, member characteristics and the nature of their inter-relationship and another category of situational variables as the determinants of leader-member exchange. For the proposed study, psychological variables of general self efficacy, culture orientation of the employees, transformative leadership style and the state of the leader-member relationship will be measured as LMX antecedents. It is hypothesized that these antecedents will positively impact the employees' psychological contract fulfillment. Afore mentioned hypothesis will be tested in relation to a population of three hundred executive and staff level employees at an apparel manufacturing company in Ragama, Sri Lanka using explorative research design and survey method. Data collection instruments will be tested for their psychometric properties using Cronbach's alpha test, correlation coefficient test and confirmatory factor analysis. MANOVA will be conducted for hypotheses testing. Research findings are stipulated to contribute to strategic decision making in workforce planning of the company in concern and literature on employees' psychological contract fulfillment in the Sri Lankan context. Simultaneously the research process is intended to create a platform for interdisciplinary approaches to collaborate and to help organizations make data driven business and workforce decisions in achieving sustainable development.

Keywords: Leader-member exchange, Leadership, Psychological Contract, Workforce planning, Sustainable Development

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Impact of Community Based Health Promotion Activities on Developing Health Practices in Horowpothana Divisional Secretariat Division

W.A.U.M. Wijesingha¹

Improved health has been one of the main benefits of development. Better health is the key of human happiness and well-being. From this perspective, health promotion is directly caused for developing health education through strengthening community action and personal skills. Therefore the main purpose of the paper has focused on the impact of community based health promotion activities on developing health practices through community action in Horowpothana Divisional Secretariat Division. The study area of this research is Horowpothana Divisional Secretariat Division. In this study, stratified sampling method were used by the researcher. Under stratified sampling, sample was divided into two strata as “following health promotion activities” and “do not follow health promotion activities”. In determining strata of health promotion activities that conducted by the village community used as the major criteria. The total sample included 60 households. Out of them, 50% were represented by following health promotion and the rest was represented by do not follow health promotion and the sample size by the total population was 5%. Primary data was collected through a questionnaire, semi structured interview and observation. Cross tabulation and time series analysis are employed for the analysis. This study revealed that there is a considerable difference in health practices between selected strata based on health promotion materials. As a result of community based health promotion activities, health education and health practices of mother’s have developed in the region which is following health promotion activities. As recommendations it can be indicated that introduce such kind of community based activities in other rural areas, enhance the quality of the health promotion materials and health promotion activities can be implemented as escape development issues associated not only health, but also improving participation and others among communities.

Keywords: Health, Health Promotion, Community based health promotion activities, Health Practices

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The Global Politics of Sustainable Development: An Analysis of Political Challenges to Sustainable Development

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Sustainable development is a subject that has sparked debate in the arena of global politics at present. Global politics can be a determining factor that could enhance or diminish the prospects of sustainable development. Materialization of sustainable development goals has been confined due to many challenges. Among these challenges, the major challenge is posed by political challenges which arise from the lack of political will and the inability among participating members to arrive at consensus. Even though pressure groups and civil society can exert some pressure in the decision making process, the whole decision making power is vested in the hands of politicians and elites. Therefore, implementation of policies aimed at sustainable development is only an illusion in the absence of a political will. For changes to be taken place there should be a political will. These controversies have created motivation for this study to address how global political challenges hinder the prospects of effective policy planning in sustainable development at global level. Therefore, this study will be significant in assessing the effective role of global politics in addressing issues related to sustainable development. The key research finding is that; the achievement of sustainable development in the absence of a political will is only a utopian dream. A qualitative approach has been used to analyze the secondary data collected through data sources including books, government publications, policy papers, academic journals, conference proceedings, speeches, web information and previous research. Data triangulation method has been used in collecting secondary data from multiple sources while collected data was analyzed through deductive content analysis method. The intended outcome of the research aims at creating awareness among policy makers about the importance of their role in materializing sustainable development goals.

Keywords: Global Politics, Sustainable Development, Political Challenges, Political Will, Actors

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Factors Effect on the Customer Perspective towards the Usage of Online Banking in Sri Lanka

Apeksha Embuldeniya¹

The evolution of information technology has brought extensive changes in the means of service delivery in the banking sector as internet is the thrust behind online banking that conducts and process transactions in one click. Competition among rivals and compatible with the revolutionary components of the electronic marketplace, Sri Lankan banks have actively developed online banking services recently in Sri Lanka. The customers are not substantially perceive any increment in use of online banking respectively to the development of online banking services by the banks. Thereby the study is increasingly interested in finding the factors effect on the customer's attitudes towards the usage of online banking in Sri Lanka. The study consists of eight hypotheses that developed on the basis of attitudes of trust, usefulness and ease to use towards online banking. The target population of the study was consist of customers who have bank account for last year in Colombo district of Western Province, Sri Lanka. The study selected 250 customers by random sampling technique from Homagama divisional secretariat included to Colombo district. Questionnaires were used to collect data. Descriptive analysis, and chi-square analysis were used to analyze data. The results indicated that daily usage of online banking of females are higher than the male customers while majority of female and male are using their personal computers and smart phones to use online banking services respectively. All the customers are aware about the facilities such as balance inquiry, viewing transaction history, bill payments, and managing credit cards online while some customers are not aware about opening a fixed deposit, and opening savings accounts, and make investments by online. The study concludes that privacy, security and the responsiveness from the bank are the most significant factors towards usage of online banking while convenience and service quality included to the attitude of usefulness towards online banking as well as accessibility and speed included to the attitude of ease to use are also plays a significant role. However the impact of bank performance, image and user friendliness of the website is negligible.

Keywords: Online banking, Privacy, Security

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A Study Based on Livelihood Aspects of Conflict Affected Women

M. Janani Deshapriya Peiris¹

The three decades long “Sri Lankan conflict” came to a conclusive end in May 2009, following the military defeat, the country is at its evidence of sign of relief at the post conflict era after experiencing three decades of horrible past which consist of destruction, demise and chaos. Thus, post conflict peacebuilding has emerged in various aspects, and there is the requirement to address these aspects in order to build peace and reconciliation. In this background, this research is based on the study of the livelihood of conflict affected women in Northern, Sri Lanka. Hence, the main objective of this research is to discuss the current income earning methods, their special issues of livelihood, and to recommend policy proposals to effectively address their livelihood issues of conflict affected women. The research problem of this study is to ascertain “what kind of sustainable livelihood issues faced by the conflict affected women who live in Vavuniya District”? Thus, this study will be a mix of qualitative and quantitative approach. The sample was selected from the conflict affected women in Vavuniya District, North Sri Lanka. Further, data is mainly collected through single households, women who are widowed and single mothers whom are above 18 years of age. Primary and secondary data was used while the quantitative data was analyzed and presented through charts and figures when necessary. It made clear that the basic needs measured by this research are sufficiently adequate despite the fact that these women lack financial and product assistance to enhance their income. The major problem identified is lack of water for their occupations since abundant water is available for their houses. When regarding the issues attributed by these women, it is important to develop women’s entrepreneurship programmers with access to monetary funds. Empowering these women is considered as the crucial factor as classified by this study. Finally it could be concluded that the government has to solidify their concern for these single households most importantly the older women regarding their livelihood.

Keywords: Women, Post conflict, Livelihood, North, Sri Lanka

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The Work-Life Balance of Medical Officers at Teaching Hospital Kandy, Sri Lanka

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The work-life balance has become a much discussed topic in today's context in relation to many groups that are affected by many complexities and highly demanding nature of the modern world. This research focused on the work-life balance of medical officers in the Kandy Teaching Hospital. The study emphasized on the impact of work environment, family environment, family and community groups, physical well-being, mental well-being, personality, and financial stability on the work-life balance of medical officers. Further the research tried to study the variation between demographic factors and employee work-life balance. A quantitative questionnaire survey was conducted for the total population of medical officers at Kandy Teaching hospital which consisted of 86 respondents. The collected data was subjected to descriptive and inferential statistics. It is concluded that out of the seven independent variables except personality and financial stability all the variables have significant relationship with work-life balance of medical officers of teaching hospital, Kandy. Further the study revealed that except with departments where the medical officers work, work-life balance does not vary with other demographic factors. Based on the research findings the following recommendations were made: Teaching Hospital Kandy must reduce the number of duties and to distribute the responsibilities equally within the medical officers. The stress created by the family members on the medical officers should be addressed in a personal basis and resolved. The medical officers have to be counseled on not to get too stressed, and managing the pressure of maintaining a certain social image and standard. This study also recommends educate the general public about the different challenges faced by the medical officers about the work-life balance and to give them the relevant support. Further the hospital must provide gym facilities and availability of healthy food at hospital canteen to support the physical well-being of the medical officers.

Key words: Work-Life Balance, Medical Officers, Kandy Teaching Hospital

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Sustainability vs Asian Urbanization: Lessons through Space Making at Pola in Sri Lanka

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Sustainability is inextricably linked with the urban and will therefore inevitably rely on the life journeys of millions that live in those cities. Further, Mayor of NYC, Bill de Blasio, marking the opening of the summit 'Urban Resilience Summit 2017,' said "Cities are at the forefront of local solutions to the global problems of climate change and inequality". World Urbanization Prospects report, "Today, 54 per-cent of the world's population live in urban areas," and "...[will] increase to 66 per-cent by 2050... [adding] another 2.5 billion people to urban..., with close to 90 percent of the increase concentrated in Asia and Africa..."

However, if Asia (and Africa) is leading the trend of urbanization globally, it is in Asia (and Africa) that the experiments to achieve a sustainable urban future should take place. Cities and the 'life journeys' of diverse urban populations in the global West and South differ in their character, composition, aspirations and soul. Hence, imported spatial-solutions to achieve sustainability makes little to no sense. Perera (2013), argues that "[to understand the Asian city and development] ...the vast terrain of ordinary actors and spaces which are currently left out should be reflected in academic debates and policy decisions, and the local thinking processes that constitute these spaces need to be acknowledged, enabled, and critiqued." Hence the historical and colonial process of importing urban solutions from the global West to solve urban issues in the global south is problematic though the slippery term 'sustainability' continues to mask and justify importation.

Exploring the link between sustainability—a Western discourse—and Asian urbanism is an emerging path of inquiry, this paper will first develop a broader understanding of 'sustainability' through a literary survey across sustainability studies, development, urban planning, and draw empirical evidence from social production of space, from an everyday perspective; It aims to show sustainability as something embedded in local ways of development and urbanization as opposed to bureaucratically imported solutions. It will examine the Pola (periodic market in Sri Lanka) focusing on everyday practices of sustainability in 'space making' both physically and socially in contrast to similar operations in a Pola re-developed by the state in the view of achieving urban modernity and sustainability. Building on the author's lived-in experience and ethnographic explorations of Pola as support staff to a Pola vendor for 3-months, the paper seeks anew understanding of sustainable-urban-future for fast growing Sri Lankan cities that brings everyday practices of sustainability into the realm of policy making and spatial planning. By creating room for ways in which sustainability is understood and practiced locally the national policies and programs can gain more mileage and authenticity compared to what can be achieved through mere importation of policy and urban solutions.

Keywords: Urban development, Sustainability, Sri Lanka, Ethnography, Social Production of Space, Informality, Markets

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Female Migration and its Practice among the Muslim Community: With Special Reference to the Trincomalee District

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Introduction: The term 'migration' has come into the usage of social discourses mainly to refer to the movement or mobilization of certain people within a social system. Female migration can play a key role in rural areas due to their mobility at household level in rural areas in Sri Lanka. The end of the three decade long civil war in Sri Lanka was declared in May 2009. The war and its related processes resulted in significant levels of male and female migration and impacted the rural community significantly. Nevertheless, at present, female migration from rural areas to outside of the country is an issue of Muslim communities in rural areas in Sri Lanka.

Materials and Methods: Given this social context, this study especially focuses on two major components such as female migration and rural families among the Muslim community. Under these components, this research attempts to understand how various forms of female migration and their impact on families in a rural community by particularly focusing on the rural spaces. In this research, primary data was collected from a sample of 82 rural family respondents in the selected rural area of Pulmoddai, Trincomalee district in Sri Lanka. The selected respondents were used in- depth interviews, case studies and non participation observation as the ways of collecting primary data. The data was analyzed using grounded theory model.

Results and Discussions: The results of the study confirm a significant difference in the perceptions on female migration among rural families. As a result, in recent years, the rate of occurrence of female migration in Pulmoddai among the Muslims is increasing dramatically. There are several factors, responsible for female migration, influence the rural communities. The most influential socio-economic factors affecting the female migration in rural are; age, marital status, pattern of marriage, levels of education, numbers of the family members and gender role in rural area. The results of the study further reveal that the demand of female migration varies with levels of consumptions, income and socio- cultural activities. But *family size* is the most important variable.

Conclusion: Furthermore, this study has found that reasons for female migration from their community to outside of the country were not only economic reason but it was related to some cultural reasons as well. On the other hand, female migration is identified as a *subculture* of the Muslims communities in rural Trincomalee. Thus, the female migrations give a social and economic mobility of the rural families in different scales.

Keywords: Female Migration, Muslim Community, Rural Family, Mobility

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Health Rights of Estate Workers Provided by Health Policy of Sri Lanka: A Study Conducted in Madampe Estate

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It has been universally accepted that Health and Human Rights are reinforced and interconnected. If a man is to enjoy Human Rights, he must have a healthy life. Due to this reason, health rights have been given a focal concern in human rights. In contemporary world, all most all governments including Sri Lanka when formulating public policies have given a primary attention to rights of various segments of the society. During the last two decades, successive government of Sri Lanka that was inspired by millennium and sustainable development discourses have contributed to a different extent to promulgate and operationalize health policies to enhance the living condition of estate workers while ensuring their enjoyment of health rights. Despite such a situation, one of the major social criticisms, targeted the state policies was the not ensuring the conducive legal backdrops for these people to enjoy their full right to access to the healthy life in their areas. The aim of this study was to explore these puzzling situation pertaining to the health rights of state workers provided by the health policy in Sri Lanka by paying particular attention to Madampe estate. Hence, the objectives of the study are to examine the legal impediments to protect the health rights of estate labourers, their economic protection. By applying qualitative research methodology, 35 employees from Madampe Estate and 5 health officers were interviewed to collect primary data while referencing letters, reports, documents and e-sources to obtain secondary data. The descriptive method was used to analysis data to come up with explanatory findings for answering the research questions. One of the main findings derived was that health rights of state employees are not adequately secured both by legal provisions as well as operational routines. Some of the notable reasons that were encountered were the lack of sufficient sanitary facilities, lack of modern medical services and hospital facilities, amateur medical officials, lack of health clinics and health education programmes in the areas. For the protection of space for health facilities of estate people, synergic endeavour need to be take by state, private sector and community level actors. Reconsideration of legal provisions and practical actions should be done with comprehensive frame in order to cover up the entire community.

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**පාසල් සංස්කෘතියේ දුර්වලතා නවයෞවනයින්ට මන්ද්‍රව්‍ය භාවිතයට මග හෙළිකරන
ආකාරය පිළිබඳ අධ්‍යයනයක්**
අම්පේ විමලධම් හිමි¹, ආචාර්ය සුභාෂිති විජේසුන්දර²

මන්ද්‍රව්‍ය පාසල් සංස්කෘතිය ආක්‍රමණය කරමින් පාසල් විශේෂ දරුවන්ට විවිධ ආකාරයෙන් මන්ද්‍රව්‍ය ලබා දීමේ ක්‍රම ක්‍රියාත්මක වන අතර දරුවන් ද ඉතා උපක්‍රමශීලී ලෙස මන්ද්‍රව්‍ය පාසල තුළ භාවිත කිරීමේ ප්‍රවණතාවක් වර්තමානයේ දක්නට ඇත. පාසල් යන වයසේ පසුවන දරුවන් මන්ද්‍රව්‍ය අත්හදාබැලීමේ අවධියට අයත් වේ. එම පසුබිම ප්‍රයෝජනයට ගනිමින් පාසල් සිසුන් තම පාරිභෝගිකයන් බවට පත්කර ගැනීමට මන්ද්‍රව්‍ය ජාවාරම්කරුවන් විසින් සුක්ෂම හා දීර්ඝකාලීන විවිධ උපක්‍රම ක්‍රියාත්මක කරනු ලබයි. ගුණාත්මක පර්යේෂණ ක්‍රමවේදය යටතේ මෙම පර්යේෂණය සිදු කරන ලදී. පර්යේෂණ භූමිය ලෙස රජයේ පුනරුත්ථාපන මධ්‍යස්ථානයක් ද, නියැදිය ලෙස පුනරුත්ථාපනය වන නවයෞවනයින් පස්දෙනෙකු හා මනෝඋපදේශකයින් දෙදෙනෙකු යොදා ගත් අතර දත්ත රැස්කිරීම සඳහා සම්මුඛ සාකච්ඡා භාවිත විය. පර්යේෂණයේ න්‍යායාත්මක පදනම ලෙස පුද්ගල සංවර්ධනය පිළිබඳ ජීව පරිසර විද්‍යාත්මක න්‍යාය යොදා ගන්නා ලදී. මන්ද්‍රව්‍ය භාවිතය සඳහා පාසලේදී සිසුන්ට බලපාන සාධක අතර ගුරුවරුන් නොසලකා හැරීම, පාසලේ සිදුවන නීති විරෝධී හා සදාචාර විරෝධී කටයුතුවලදී එම සිසුන්ට නායකත්වයක් හිමි වීම, සමපදස්ථයින් අතර මන්ද්‍රව්‍ය භාවිතය වීරකමක් සේ සැලකීම, මන්ද්‍රව්‍ය භාවිත කරන සිසුන්ට වැඩිහිටි සිසුන් ඇසුරට අවස්ථාවක් හිමි වීම හා තමා වැඩිහිටියෙකු ලෙස දැකීමේ ශිෂ්‍ය අභිරුචිය මෙහිදී විශේෂ වේ. පාසල් සිසුන් පිළිබඳ ගුරුවරුන්ගේ අවධානය ගිලිහී යාම අවධාරණය කළ යුතු වැදගත් කරුණකි. පාසල තුළ දුම්කුඩු වැනි මන්ද්‍රව්‍ය සකස් කරගැනීම සිදුවන අතර ඊට අවශ්‍ය අවකාශය පාසල තුළ දී ම සලසා ගැනීමට ඇතැම් සිසුන් පුරුදු වී ඇත. නාගරික පරිසරයේ පාසල් ස්ථානගත කිරීම හා පාසල් ගොඩනැගිලි ස්ථානගත කිරීම කෙරෙහි ද අවධානය යොමුවිය යුතු බව නිගමනය කළ හැකිය. මන්ද්‍රව්‍ය හා සම්බන්ධ වෝදනාවන් ලබන සිසුන් පාසලින් ඉවත් කිරීම වෙනුවට ඔවුන් මනෝඋපදේශන සේවයකට යොමු කිරීමත් සිදුවිය යුතුය. එවැනි දරුවන්ගේ දෙමාපියන් හා පාසල එක්ව ඔවුන් පුනරුත්ථාපනය කළ යුතුය. එකිනෙකාට වෝදනා කරගැනීම ගැටලුවට පිළියම නොවන බව හා එය වඩා යහපත සමාජයක් ගොඩනැගීමට ඉවහල් නොවන බවත් තේරුම් ගත යුතු කාලය එළඹ ඇත. නිවස හා පාසල යන ආයතන දෙකෙහි මානව සම්බන්ධතාවල ඇති දුරස්ථභාවය හා දෙමාපියන් හා දුරුවන් අතර දුරස්ථභාවය බොහෝ නව යෞවනයින්ගේ දුස්සමාහිත වර්යාවන් සඳහා පසුබිම සකස් කරයි.

ප්‍රමුඛ පද: නව යෞවනයින්, සමපදස්ථයින්, මන්ද්‍රව්‍ය භාවිතය, දුස්සමාහිත වර්යා.

¹ ශ්‍රී ලංකා විදුහල්පති සේවය, කැ/පානකාව මහා විද්‍යාලය, ඇදුරාපොත. ampedhamma@gmail.com

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A Study on Social and Economic Impacts of the Migrated of Domestic Workers on Their Families and Children Left Behind

N. K. D. D. Amarasiri¹

Unemployment and low wages prevailing in the global market pushes female workers to look for better employment in foreign country. Therefore, labor export is the main source of foreign exchange earnings for Sri Lanka. These migrant women come from low income families and have lower levels of education. The main objective of this study is to investigate the economic and social impacts of married females migrating overseas as domestic workers on their families and children left behind. Mirigama Divisional Secretariat Division was selected as study area. The 30 families of domestic workers were selected under the judgment sampling methodology. Field Survey, Interviews, case study and Questionnaires were used for collect primary data. Secondary data were gathered Institutional publications, reports, Internet articles. Data were analyzed by using descriptive data analytical methods. Migration can have both positive and negative impacts of socially and economically. The migration can have positive impacts on the increasing migrants' household income, savings and investment, build houses or repair the condition of their houses, buy lands, reduction debt burden and develop their daily consumption, increasing involvement of women in decision making, financial matters and household activities, improvement in the skills of the migrant, personal development, improvement in the social status of the family, improvement in children's education and the changes in gender roles. It can have negative impacts on if the marriages of the migrant are disrupted due to migration or they lose their recognition in the family or their children, the migrant had accumulated debts, the family members at home had misused migrant's remittances, migrants' husband has stopped working jobs and husbands getting addicted to liquor. The study revealed that the migrated housewives mentioned above have not achieved their object completely.

Keywords: Migration, domestic workers, social and economic impacts, Sri Lanka

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Rites of Passages among Meemure Inhabitants Living in Kandy District, Sri Lanka

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Meemure village, situated in the Kandy District of Sri Lanka 229 Km away from Colombo city is famous for its unique culture. Isolation from the main society and adaptation to the environment together has made their culture a specific one. 'Rites of passages' perform in the significant transition periods of individuals' life; can be considered as one of the distinctive feature of their traditional cultural system. These rites highlight and validate changes in a person's status, particularly on the occasion of such life-transforming events as birth, puberty, marriage and death. The present study was aimed to discover their unique rites of passages and its significant characteristics in the balancing of their social and cultural organization as well as its function in the socialization process. Ten interviews were carried out with purposively selected individuals who belonged to the Meemure village from the distant past and who were knowledgeable about their culture. Childbirth is considered as a dangerous transitional period of life, surrounded by supernatural entities. Corner room in the house is prepared with a rope (labour cord) hang on the joist, above a mat, thereby providing support to the parturient mother in her effort of child delivery. More rites are performed until the weaning ceremony of the child. Different puberty rituals are practiced by Meemure villagers from the segregation period to the reintroducing of a girl with a new status in to the society. Rites associated with Atamagala (represent eight auspicious signs) and Malabulath Thattuwa (decorated betel-tray) etc., contribute to the proper socialization. Wedding rites are representations of valued traditional customs which are performed with the participation of special person called Danamuthu Rala. Methods they use in the preservation and purification of the body are particular to them as well the associated rites with the death. Mechanisms of culture change have affected badly on these valued cultural system which no longer accepted by the youngsters. Therefore, these types of studies are significant in preserving and in reconsidering the importance of these forgotten rites.

Keywords: Birth, Cultural Change, Death, Puberty, Wedding

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Influence of Selfie on Enhance Adolescent's Self-Image (With Special Reference to GCE (A/L) Students Who Participated to the Private Tuition Classes in Mawanella Area)

S. A. N. P. Suraweera¹

The revolution of information and communication technology has been influenced with regardless of religion, creeds, nationality, caste, culture or any other forms. With help of this technology has been introduced new instruments on needs of peoples, smart mobile phone is one of result of this technological world. Smart mobile phone has been changed to lot of human needs and desires in around the world. Selfie photograph is a one of new trend, of new generation. "Selfie" has defined as a photograph that one has taken of oneself, typically taken with a smartphone or webcam and shared via social media, especially Facebook. The present study examined the influence of selfie on enhance adolescent's self-Image with special reference to GCE (A/L) students who participate private tuition classes in Mawanella area. The research problem is to determine how to be the selfie influence to enhance adolescent's self-Image. Both primary and secondary data were used to conduct this research. The sample group have gathered from GCE A/L students who are participating private tuition classes in Mawanella area and Kegalle district, from where 48 participants were male and 52 female. The study has used the methodologies of survey, questionnaires and observation methods. Secondary data have been collected through books, journals and academic research publications. Quantitative data have used for the summary of the data analyzed through the charts and graphs. This research was found that the all of the female respondents have interested to take selfie than the male respondents. They have clicked their cell phone more than five times for take the selfie. They have selected most attractive angle and posted though the social network sites for the measuring their image. But sometimes they are wondering about their image when they are not getting positive reaction from their network's fans. However the selfie has facilitated to enhance their personality, knowledge of fashion world, personal image (self-image), to build up relationship etc. Therefor more than 92 adolescents used selfie photograph to enhance their self-image.

Keywords: Smart mobile phone, photograph, Selfie, adolescents, self-image

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The Impact of Infrastructure Development on Urban Poverty Reduction

R.A.C Kanchana¹

Poverty is a multidimensional phenomenon and it is clear that there are aspects of poverty which go beyond the conventional measures of monetary income. Urban poverty has gained acceptance as a major issue that warrants a holistic approach, which included both physical and social infrastructure. Infrastructure can broadly be defined as long-term physical assets that operate in markets with high barriers to entry and enable the provision of goods and services (NZSIF) and as a key element of poverty alleviation. Social Infrastructure is a subset of the infrastructure sector and typically includes assets that accommodate social services. Over the years the improvement in Infrastructure facilities is one of the key milestones in improving the wellbeing of residents. Recently, it has been a remarkable sight that the responsible authorities have taken part to improve the quality of the urban poor through infrastructure development. Although many infrastructural development programs have been accelerated, it is exceptional to aware of the impact of those attempts. The main objective of the research is to explore the impact of infrastructure development on urban poverty reduction. The research was both qualitative and quantitative. Dematagoda Grama Niladhari Division of Thimbirigasyaya divisional secretariat in Colombo district was selected as the study area. Both primary and secondary data were collected to proceed the study. According to the study it was revealed that unequivocally, infrastructural development leads to poverty reduction. But Social Infrastructure Compared to Physical Infrastructure, poverty reduction is less progressive. Although Social Infrastructure benefits residents it takes time, it is because the behavior rooted patterns

Keywords: Urban poverty, infrastructure development, poverty reduction, physical infrastructure, Social Infrastructure,

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Indigenous knowledge of Medical Depicted in Palm Leaf Manuscripts in Sri Lanka

Chandana Abayarathna¹

Palm Leaf Manuscript culture in Sri Lanka has a long history. According to Sri Lankan chronicles which were composed in 5th century A.C, writing on palm leaves has been started at least in the 1st century B.C. As mentioned in those chronicles, during the reign of King Vattagamini Abaya ^89-77 B.C.& Buddhist monks have used palm leaves to inscribe the doctrine of Buddha. But in the later periods in addition to the religious texts" secular subjects also were written on palm leaves, like indigenous medical practices, astrology, palmistry and various kinds of black magic etc. Indigenous medical practices include medical treatments for human as well as animals. The diarrhea, vomiting, snakebites, fever, mental disorders and more other day to day ailments were commonly treated.

Faculty of Social Sciences" University of Kelaniya Sri Lanka has established a palm leaf manuscript study and research Library (PLMSRL) to preserve those manuscripts, because due to various causes they are being damaged. Now there are more than 3000 manuscripts copied and preserved.

This research was carried out by using those manuscripts. The methodology used for this research is examine those manuscripts thoroughly and the main objective is to recognize the major areas of the indigenous knowledge which prevailed for more than twenty centuries throughout the history of Sri Lanka.

Keywords: Palm Leaf Manuscripts, Indigenous Knowledge" Chronicles" Medical" Astrology

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A Proposal for Sustainable Community Development through a Culinary Trail

Indrachapa Gunasekara¹

This research is focused on design a proposal to develop Sri Lankan community through sustainable tourism approach. Sustainability concept appeals to the development of Sri Lankan economy with the millennium development goals of United Nations.

The culture is the prominent factors which can be developed as tourist attraction. In addition, Culinary is a part of the culture of any society. As it is consisted of food preparation techniques, methods, different ingredients, tastes and presenting styles it usually capture the attention of tourists. Since Sri Lanka has diverse sub cultures there is a high diversity of cuisine. The variation in Sri Lankan cuisines have been influenced by geographic and demographic diversity. Taking this factor into account the development of new tourism product which named Sri Lankan Culinary Trail has proposed by the research. This product is based on traditional cuisines and the service providers of this tourism segment are the local community whose benefit is focused on this research.

This is an exploratory research which based on primary data collection method where a questionnaire survey carried out for market analysis. The respondents were local people who selected randomly based on Negombo coastal belt. The product will be a prototype implementation plan which can be developed up to national level.

Keywords: Culinary Tourism, Sustainability, Product development

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The Variations of Spatial Distribution of the Schools in Colombo District: A GIS Based Approach

Neel Withanage¹

The education provides the life blood for human being. In Sri Lankan context Education Zone (EZ) is supervised the large numbers of schools in the specific area. Due to lack of application the Information Communication Technology (ICT) in education many problems can be identified in school management process. Especially there is a high potentiality to apply Geographic Information Systems (GIS) for education management and administration. Even most of the schools do not cover the GIS part in their curriculum. Now a day's popular schools gained more competition in the process of grade one student selection. Thus the schools used manual distance calculation system using hard copy of the area map, no common computerized system. And also there is a contrastive difference between Colombo urban schools and schools in the outskirts of Colombo. Within the Colombo metropolitan area the number of 1AB schools are higher than the other areas of the country as well as the outer core of Colombo. There are 36 National Schools and totally 405 government schools are situated in the district of Colombo. Moreover 16 out of 36 National schools are located in the Colombo metropolitan area. The study has been devoted to discuss what factors have been contributed towards the variations in spatial distribution of schools in the Colombo District. Identifying the spatial variation of school distribution in the district and determining the school catchment areas were among specific objectives. The school system can be used the GIS for distance calculation within the specific proximity area. In the study different GIS techniques like proximity analysis and Thiessen Polygon tools were being facilitated to identify threshold within a school clusters. This study tried to identify schools clusters by using Spatial Autocorrelation and Multi-Distance Spatial Cluster Analysis (Ripley's K Function) tools. The study had proven the schools in Colombo District are spatially distributed as clusters. According to the analysis main school clusters located in the western coastal area which having high density of schools. Excluded the core schools in clusters are being changed the level of schools. The results will be able to imply in the decision making in bottom level to top level especially in education zone.

Keywords: Colombo District, Geographic Information System, Information Communication Technology, Schools, Spatial variation

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**Psychosocial Factors Affecting on Educational Performance of School
Students in Sri Lanka
(With Reference to Gampaha District)**

Nathalia Fernando¹

Educational performance can be affected by numerous factors. This study was conducted to explore the important psychosocial factors (PSFs) among the other factors such as attitude towards attendance in classes, time allocation for studies, motivation, parents' level of income, parents' education, teacher-student relation, learning facilities, proper guidance, parenting style and sex of student are also affected the educational performance of the students. therefore, performance is product of socio-economic, psychological and environmental factors. As well as responsibility of education is, that produces well-educated, skilled, mannered students according to needs and requirements of the society and the job market. The objective of this research was to find out the psychosocial factors (PSFs) that affect the educational performance of School Students in Sri Lanka. Selected sample size was 250. Research was conducted on ordinary level (O/L) school children in Gampaha District. There were two groups of students as generally perceived, those who show high performance in their studies and those who don't. Questionnaire and some short interviews were used to gather data. Data were analyzed by using simple statistical methods such as percentages. To show the analyzed data bar charts were used. The results showed that, females demonstrated greater motivation, attendants than males. There was positive relationship between parents' education and students' performance. parents' age also appeared to be important factor. Student attitude towards attendance is positive. Student's family income is positive on their studies. Student attitude towards time allocation for study per day after school is positively related. Learning facilities and proper guidance shows the positive impact on the student performance and the family stress shows the negative impact on the student performance. Authoritative parenting style shows the positive impact. The student performance could be improved by providing proper leaning facilities and supporting environment in school and home. The student performs well if they are properly guided by the parents and also by their teachers.

Keywords: psychosocial factors (PSFs), Educational performance, School Students, psychosocial, performance.

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Depiction of Gender Discrimination through Cinema: Related to Prasanna Vitanage's Cinematic Approach of the Film "*Anantha Rathriya*"

Ayesh Madushanka Wijayasinghe¹

According to the Critics, cinema can be considered as the most powerful medium of art which can be used to deliver powerful messages towards the human society. In that aspect, the director of the film has a major responsibility in creating and delivering such messages to the audience through using creative elements of cinema. Most number of directors tries to reveal the unseen reality of human life through cinema. Prasanna Vitanage can be considered as a director who always tries to reveal the bitter truth of human nature through his cinematic approach.

Most number of cinema creations done by Prasanna Vitanage created a controversial atmosphere in the Sri Lankan society. Some of his cinema creations were banned due to that reason. But Prasanna Vitanage tried to reveal some gender discrimination which prevailed in the Sri Lankan society. This research mainly focused on how Prasanna Vitanage tried to depict gender discrimination through his cinematic approach of his film *Anantha Rathriya*. Content Analysis and In-depth Interviews were used as the research methodology to collect data regarding this.

According to the data which was collected from the above methodology clearly suggest that the gender discrimination can be seen in the several sections of the society. In that aspect the woman faces serious troubles where she couldn't get a justice even from the law of country.

Keywords: Prasanna Vithanage, Cinematic Approach, Gender Discrimination, Cinema, "*Anantha Rathriya*" Film

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Dengue: The Cost of Illness

Wasana Kalansooriya¹

Dengue is a viral infection transmitted through the bite of infected *Aedes* mosquitoes. It is an endemic in Sri Lanka especially in urban and suburban settings with higher transmission rates happening during the rainy season. Even though the dengue epidemic has been devastating, its consequences for the people and economy have received a little attention from economists. The economic burden of the dengue disease has many aspects. First, it affects the public budget as the government urged to allocate extra resources to treat dengue patients as well as to control the spreading of the disease. Second, it affects the individual and household budget since they have to face an unexpected expenditure for their treatments. Thirdly, getting illness reduces the number of working days of the people and therefore the overall productivity of the economy. Therefore, this study intends to identify the economic cost of dengue disease in Sri Lanka by taking a sample of 117 dengue affected people in the year 2016. The sample was selected from Maharagama division in Colombo district which is one of the high density Dengue reporting area. The selection of the sample units was on judgment base according to the prevalence data within the year. The study estimated three kinds of costs; direct medical cost, indirect cost, and other costs involved in Dengue disease. Direct medical costs include the cost associated with hospitals, doctors, nurses, use of equipment, laboratory services, prescriptions, and so on. A shadow price method was used to estimate the indirect cost which is their forgone productivity. The other costs include the extra cost bared by the patients and their families due to the illness; such as food, travelling, caring, and so on. The study found that the total cost of prevalence of dengue disease per person is approximately 74000 rupees on average while 74% of this accounts from direct medical cost, 16% from the loss of productivity and 10% from other.

Keywords: Dengue, Economic cost, Medical cost, Productivity loss, Other cost

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මධ්‍යකාලීන ශ්‍රී ලංකාවේ පොල් වගාව

ජේ. එම්. සුධර්මාවතී¹

ශ්‍රී ලංකාව ඇත අතීතයේ පටන් ම වි වගාව ප්‍රධාන කරගත් කෘෂිකාර්මික රටකි. වි හැරුණු විට විවිධ ධාන්‍ය වර්ග මෙන් ම දීර්ඝ කාලීනව ඵලදාව ලබාගත හැකි වෙනත් බෝග වගාවන් පදනම් කරගත් කෘෂිකාර්මික අංශයක් ද පැවතිණි. මධ්‍යතන අවධියට අයත් මූලාශ්‍රයවල සඳහන් වන ආකාරයට එලෙස වතු වගාකරන ලද බෝග රැසකි. ඒවා අතර කිතුල්, පොල්, පුවක්,කොස්, නාරං, අඹ යනාදිය දැක්විය හැකිය. මේවා අතුරින් රජරට ශිෂ්ටාචාර අවධියේ විශේෂ අවධානයක් යොමු නොවූ බෝග වගාවක් වන්නේ පොල්වගාවයි.

මධ්‍යකාලීන යුගය ලෙස සලකනු ලබන්නේ නිරිත දිගට හෙවත් තෙත් කලාපයට රාජධානි සංක්‍රමණය වීමත් සමඟ උදා වූ අවධියයි. ක්‍රි. ව. 13 වන සියවසේ සිට 16 වන සියවස දක්වා කාලය ඊට අයත් යැයි සැලකේ. මෙම පර්යේෂණයේ අරමුණ වන්නේ මධ්‍යකාලීන යුගයේ ආර්ථික ක්‍රියාවලිය තුළ පොල් වගාවට හිමිව තිබූ තත්ත්වය පරීක්ෂා කිරීමයි. මේ සඳහා ප්‍රාථමික හා ද්විතියික මූලාශ්‍රය ඇසුරින් තොරතුරු ඒකරාශී කරගන්නා ලදී. දේශීය මූලාශ්‍රයවල මෙන් ම විදේශ ලේඛක වාර්තා රැසකම මධ්‍යතන අවධියේ මෙරට පොල් වගාව පිළිබඳව කරුණු දක්වා තිබේ. එම තොරතුරු විශ්ලේෂණාත්මක ක්‍රම භාවිතයෙන් විශ්ලේෂණය කෙරිණි .

මේ අවධිය ආරම්භයේදීම රාජානුග්‍රහය පොල් වගාව කෙරෙහි යොමුකර තිබීම විශේෂතාවකි. සාහිත්‍යාගත තොරතුරු අනුව මෙකල දිවයිනේ විවිධ ප්‍රදේශවල සරුසාර අන්දමින් පොල් වගාව පවත්වාගෙන ගොස් තිබේ. පොල් හා ඒ ආශ්‍රිත නිෂ්පාදන පරිභෝජනයට ද ආගමිකවතාවත් සඳහා භාවිතයට ද ලාංකිකයන් හුරුපුරුදු වී සිටි බව ද පෙන්නුම් කෙරේ. එමෙන් ම විදේශ නාවිකයන් තම නැව් ප්‍රතිසංස්කරණය සඳහා අවශ්‍ය පොල් ගසේ විවිධ කොටස් භාවිතයෙන් සකස් කරන ලද ද්‍රව්‍ය ලබා ගැනීමට මෙරටට පැමිණි බවට සාදක හමුවේ. මේ අනුව මධ්‍යකාලීන අවධියේ සරුසාර වගාවක් ලෙස මෙරට ව්‍යාප්තව තිබූ පොල් වගාව ආර්ථික සම්පතක් ද වූ බව පැහැදිලිවේ.

ප්‍රමුඛපද: ශ්‍රී ලංකාව, කෘෂිකර්මාන්ත, පොල් වගාව, මධ්‍යතන යුගය, රජරට ශිෂ්ටාචාරය

¹ඉතිහාසය අධ්‍යයන අංශය, කැලණිය විශ්වවිද්‍යාලය. sema23@kln.ac.lk

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