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PREFACE

Global Academic Research Institute is proud to present GARI AUGUST MULTIDISCIPLINARY SYMPOSIUM 2020 which is a series of successful research symposium. The Inaugural Session and the Technical Sessions were conducted on 27th August 2020 @ Gall Face Hotel, Colombo, Sri Lanka. The conference was organized into different disciplines which empirical, conceptual and methodological papers were received from academics, practitioners and public policy makers were accepted paying austere attention to the academic standards of the papers. To maintain consistency, authors were prescribed to follow the academic writing format of the GARI Publishers. The reviewing process was apparently transparent where papers underwent a double blinded review process by eminent subject specialists in respective areas. Thus refereed full papers selected to be presented at the conference were published here. We do not assume any responsibility for any errors or omissions in the research papers which rests solely with the authors.

Special thank goes to Guest of Honour Mr. Malraj B. Kiriella, Key note addresses & Co-chairs made by Dr. Pathirage Kamal Perera (Institute of Indigenous Medicine, Sri Lanka), Dr. S. Damayanthi Edirisinghe (University of Kelaniya), Dr. Chandana Kasturi Arachchi (University of Colombo, Sri Lanka), Dr. Diyaolu Idowu Jamiu (Obafemi Awolowo University, Nigeria), Dr. Robert Scott Stewart (Cape Breton University, Canada), Dr. Dionne Van Reenen (University of the Free State, South Africa), Dr. Y. Sarangee G. Wimalasiri (Institute of Indigenous Medicine, Sri Lanka), Prof. Hernán E. Gil Forleo (University of Buenos Aires, Argentina). The organizing committee special Appreciation Journal Partner as GARI Publishers and GARI International Journal of Multidisciplinary Research, SAP publisher, All the GARI affiliated academic partners, Further the support given by GARI Tours as Travel partner, Official Creative Partner Sameera Artco, Siththam Advertising & Sri Lanka Convention Bureau. The conference committee expresses deep gratitude to the panel of reviewers for the priceless service rendered. Finally the committee extends sincere thanks to the presenters and participants for the valuable contribution and active participation.

Conference Committee

AMS 2020

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Title: Continuation of teaching and learning during the Covid-19 pandemic: Experiences of Sri Lankan schools

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Title: Concept of food in Ayurveda and Food Hypersensitivity

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Title: Qualitative Analysis and Perception of O-Uniform in Osun State, Nigeria

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ARE MINORITY SEXUAL RIGHTS JUST FOR THE WEST?

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ABSTRACT

In a recent article, the Nigerian scholar C.O. Akpan argues that it is “unnatural for a man to sleep with a man as with a woman, and the idea of marriage in this sense is an abomination” “The morality of same-sex marriage: How not to globalize a cultural anomie,” *Online Journal of Health Ethics*, 13(1), 2017, p. 9). Arguments in favor of same sex marriage, he claims, are “driven and motivated by the human right fad through which same-sex couples feel they have [an] ‘inalienable right’ over their bodies and regarding who to marry...” (p.9). However, this alleged right is a “misrepresentation of what was originally intended,” and is therefore “a sort of elixir forced on people to accept same-sex marriage as a fundamental right. This is a consequent of [Western] culture’s anomie and cannot be made a global phenomenon” (p.9). In particular, he thinks that same-sex marriage (and homosexuality) are inappropriate for African countries such as Nigeria where he lives and works. Akpan’s arguments against both homosexuality and same-sex marriage are fairly standard. In the first part of the paper, we review these arguments and demonstrate that they are not at all convincing. In the second part of the paper, we consider Akpan’s claims that, in a new form of colonial imperialism, Western academics are improperly forcing ethical viewpoints, such as the acceptability of homosexuality and same-sex marriage, on non-Western countries, especially African ones. In response to this serious concern, we (1) present evidence from African scholars about the historical sexual diversity in African cultures, (2) show that much of the current anti-GLBT+ sentiment in various parts of Africa actually emanates from Islam and Christian colonialism, and (3) that there are many African scholars also working to promote the rights of the GLBT+ communities in Africa.

CONTINUATION OF TEACHING AND LEARNING DURING THE COVID-19 PANDEMIC: EXPERIENCES OF SRI LANKAN SCHOOLS

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ABSTRACT

COVID-19 has caused schools to shut all over the world. Worldwide, over 1.2 billion children were out of the classroom. As a consequence, education has changed dramatically, the teaching-learning process was occurred remotely and on digital platforms. During the COVID-19 pandemic time, the students of schools and universities confronted challenges in getting their education, as well as the teachers and administrators of those institutes unplanned in providing their services at the beginning of COVID-19 pandemic. However, afterward, most schools and universities took steps to provide their services through online digital platforms. The Sri Lankan schools also faced the said challenge. Since Sri Lanka has different kinds of schools it was intended to investigate how those schools faced such challenges. A mixed research methodology was used to investigate the experiences of stakeholders of school on teacher involvement in teaching online during the COVID-19 pandemic period. The principals, teachers, students, and parents of schools located in the Colombo Education Zone were selected into the sample. Interviews and questionnaires were used for data collection. The data collection was carried out online by administering digital tools such as Zoom, google meet conference tools, and google forms. Data was analyzed using thematic analysis and simple statistical methods. It was discovered that at the beginning of the COVID-19 pandemic the majority of teachers and principals (90%) had not a good idea on digital platforms, online teaching even the subject directors and teachers did not have any plan to face such challenge. However, after some time a very few numbers of government schools (20%), almost all international schools (95%), and a big number of private and semi-government schools (60%) have modified to conduct their sessions online via digital platforms. But, any Pirivena has not made any attention to conduct their sessions online. It was revealed that most of the teachers did not have required training and awareness about online teaching and digital teaching – learning platforms before the COVID – 19 pandemic. However, they had to find out a solution in continuing their academic activities, and as a result of that the teachers and relevant parties of schools have been trained for conducting online sessions, and some schools have spent funds for developing digital teaching platforms like learning management systems, online teaching-learning platforms, etc. However, such schools also have faced challenges in conducting their online teaching sessions due to poor internet facilities of students, lack of devices and resources, poor training of teachers, negative attitude of stakeholders towards online teaching, access problems, etc. Especially, it was revealed that even the teachers who are qualified in education sciences have not followed any subject or any practical session on digital education during their university education since those degree programmes are not contained such content. It seemed that as a result of the COVID-19 pandemic, it has been created a gap between the schools that have been carrying out their education activities online through digital platforms, and the schools have not been modified their teaching-learning processes according to the contemporary needs. Therefore, marginalized students studying in

poor schools have been continuing their suffering in getting well education. The main issues that have been identified during this study are lack of resources, less training, the poor background of schools, students, teachers. It was identified that the rich have been continuing their education without any interruption while the poor have been suffering in getting access and opportunity to education due to the COVID-19 pandemic. Therefore, government interference is very vital to minimize such challenges and problems faced by the students who have not continued their education due to the COVID-19 pandemic. This study suggests that since the human and other school resources directly influence the effectiveness of education of students, especially during such situations like COVID-19 pandemic, the relevant authorities, therefore, need to pay their attention, and take needful measures to solve those problems faced by schools and students.

Keywords: COVID-19, Online teaching, Digital learning platforms, Corona, Education, Teaching

CONCEPT OF FOOD IN AYURVEDA AND FOOD HYPERSENSITIVITY

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ABSTRACT

A healthy individual is defined as a term of Swastha according to Ayurveda and it represents physical, mental, social and spiritual wellbeing. To maintain the optimum level of swastha, it is necessary to be aware of dinacharya (daily routine), ritucharya (seasonal routine), ahara (dietary regime) and viharana (life style patterns). The description on dietetics is an important area in Ayurveda which covers sections on curative treatments and elimination therapy parallel to the drug treatments. The food can be either wholesome (patya) or unwholesome (apathya). The wholesome foods give happiness to the human and it gives resistance to diseases. The strength and life span depends on foods, so the capacity of consuming food and the capacity for digestion are known as abyavarana shakti (power of ingestion) and jarana shakti (power of digestion). The capacity of digestion is also referred to as agni and a disturbed agni is a cause of food-oriented problems. According to the Ayurveda, foods causing hypersensitivity can be described as 'apathya' (unwholesome) and 'asatmya' (the substances which is not suitable for the person) foods. Food hypersensitivity can be either due to food allergy or food intolerance and affects the patient as well as the society in large. It is better to find solutions for this health issue from ancient authentic texts.

QUALITATIVE ANALYSIS AND PERCEPTION OF O-UNIFORM IN OSUN STATE, NIGERIA

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ABSTRACT

The similar uniform adopted by Osun State government, O-uniform, gave no distinction between one public school and another. The study assessed the perception of students on the uniform and examined the quality. A set of questionnaire was administered to collect data. Two hundred students in public schools participated in the study. Laboratory test was carried out on the fabrics. The data collected were analyzed using descriptive statistics such as frequency and percentage. There was a general positive perception in favour of the uniform by the students. They agreed that the uniform helped in identity ($\bar{x}=2.70$) and reduced financial burden of new purchase ($\bar{x}=2.54$). They however preferred the colour and design of former uniforms which included tie, cap and socks. The analysis showed that DB fabric was 100% polyester woven with 758 denier warp yarns and 356 denier weft yarns, while the KD is 100% cotton with 16 Tex warp yarns and 2 Tex weft yarns. They had very high light fastness among other qualities. The study recommends the inclusion of mufti or any design preferred by the students that can give a level of personal expression in their appearance.

Key words: quality, O-uniform, perception, public schools.

**AN INTRODUCTION TO ETHNIC IDENTIFICATION AND HERITAGE
LANGUAGE LEARNING AMONG SRI LANKAN CHINESE**

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ABSTRACT

On the date of October 31st in 2008, Sri Lanka made provision for the Grant of the status of a Citizen of Sri Lanka to persons of Chinese Origin. The Sri Lankan Chinese, who were formally stateless and have had permanent residence since November 15th in 1948, were granted citizenship under the 2008 “Grant of Citizenship to Persons of Chinese Origin (Special Provisions) Act”. These Sri Lankan Chinese were either born in Sri Lanka or come to Sri Lanka with their parents at a very young age. Most of these immigrants are already Sinhala-dominant though some of them are bilingual in Sinhala and English in the oral form. It is not clear that Chinese immigrants preserved their ethnic identification and heritage languages in Sri Lanka but early studies show that number of Sri Lankans who were visited China had studied Chinese language and Chinese those who were visited Sri Lanka had studied Sri Lankan languages for completion of their mission in the history. As Sri Lankan Chinese are either third or fourth generation migrants, they were granted Sri Lankan citizenship. Yet, as they are ethnicity-based Chinese Origins from a minority ethnicity, it is important to examine how their ethnic identification and heritage language learning in Sri Lanka. Based on the previous studies, this research collected literary based facts and conducted a series of interviews with Sri Lankan Chinese. This research suggests Heritage Language Education (HLE) could facilitate positive ethnic identification. HLE serves as a bridge between psychological and social factors. Ideas towards HLE within ethnicity-based Chinese environment influence to improve Chinese cultural awareness and language identity among Sri Lankan Chinese community.

Keywords: Sri Lankan Chinese, Ethnic Identification, Heritage Language Education (HLE)

**PROSPECTS OF UNIVERSITY STUDENTS FOR ONLINE LEARNING DURING
COVID-19 PANDEMIC: CASE STUDY FROM THE FACULTY OF
TECHNOLOGICAL STUDIES, UVA WELLISSA UNIVERSITY OF SRI LANKA**

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ABSTRACT

All state universities in Sri Lanka were closed on the 16th March, 2020 due to the COVID-19 pandemic. Objective of this study was to understand student's potentials for learning through the online-mode. Two questionnaires were performed, before (qbe) and after (qaf) commencing online lectures. The google form was sent to undergraduates (UGs) in the Department of Engineering Technology, Uva Wellissa University of Sri Lanka. Main questions in qbe (May, 2020) were; (a) Do you have internet facilities? and (b) Do you have a device to access online lectures? Among the responded (n=189) UGs, 86 do not have internet facility, while 103 have internet facility. Fifty seven percent of UGs have smart phones and 41% of them have laptops. The qaf was conducted in the second week of July, 2020 after completing two-months of online lectures. Two main questions were set to assess students' willingness for online learning and to compare the resourcefulness before and after commencing online learning; (a) Did you attend all online lectures and (b) What was the device you used. Regarding the attendance, 88% of UGs answered "yes", 9% answered "no", while 2% of them responded with "did not attend to all". Weak signals for some areas and electricity cut-off during the scheduled lecture time are found to be the main limitations. Evidences are found for students' willingness to purchase dongle and data card to attend lectures. Improving the signal strength in the entire country would enhance the online learning. Keywords: online learning, e-facilities, undergraduate

TAMIL THEATRE IN THE ERA OF GLOBALIZATION: CULTURAL CRISIS AND CREATIVE SURVIVAL

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ABSTRACT

Sri Lankan Tamil Theatre faces a critical situation in the current era of globalization. It is a situation in which Sri Lankan Tamil Theatre should think about and identify the suitable tools for its creative survival. Globalization's influence on Tamil Theatre in Sri Lanka is massive. While it opens new opportunities, it becomes a threat too for the Tamil Theatre in Sri Lanka. On one side there is danger of losing of its identity because of the numerous alien theatre forms and styles. On the side, due to the advancement of the technology, there is a danger that theatre might lose its audience and ultimately its survival. Most of the Tamil Theatre practitioners are uncertain and confused. What to do and what not to do. Many start to turn towards other art forms like film, TV and short films especially youth. Globalization is beyond our control. One cannot stop its influence in this era. But it is very important to think about a new approach to get adapted to the Globalization for its survival without losing its identity and uniqueness.

Objectives: To identify the Opportunities and the Threats of globalization in the field of Drama and Theatre.

To identify the Strengths and Weaknesses of Tamil Theatre in the contemporary situation.

To introduce a various Tools and Techniques to use the Opportunities of Globalization and overcome the Threats.

To give ideas to develop and maintain the Uniqueness of Sri Lankan Tamil Theatre.

Methodology; The articles of this book written based a Qualitative Research carried out by the author through interviews, literature references, focused group discussions and author's own experience in the field of the theatre for last 20 years.

URBAN ETHICAL FASHION NETWORKS OF DESIGN, PRODUCTION AND RETAIL IN TAIWAN

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ABSTRACT

The Circular Economy has become one of the seven fundamental pillars of Taiwan's economic development as this is promulgated by the government. The model of the circular economy with its fundamental premise of waste elimination can transform the textile and clothing sectors from major pollutant industries to a much cleaner alternative for better quality of all citizens' lives. In a related vein, the notion of the Creative Economy and more specifically the fashion industry can prompt similar results in terms of jobs and wealth creation. The combining forces of the Circular and Creative Economies and their beneficial output have resulted in the configuration of ethical urban networks which potentially may lead to sources of competitive advantage. All actors involved in the configuration of this urban ethical fashion network from public authorities to private enterprise can bring about positive changes in the urban setting. Preliminary results through action research show that this novel configuration is an attainable task in terms of circularity by reducing fabric waste produced from local textile mills and through innovative methods of design, production and retail around urban spaces where the network has managed to generate a stream of jobs and financial revenues for all participants. The municipal authorities as the facilitating platform have been of paramount importance in this public-private partnership. In the explorative pilot study conducted pertaining to a network of production, consumption in terms of circularity of fashion products, we have experienced a positive disposition. As the network will be fully functional by attracting more participant firms from the textile and clothing sectors, it can be beneficial to Taiwan's soft power in the region and simultaneously elevate citizens' awareness on circular methods of fashion production, consumption and disposal which can also lead to the betterment of urban lifestyle and may open export horizons for the firms.

Key words: the Circular Economy; the Creative Economy; Ethical Urban Networks; Action Research

EXTRACTION OF NATURAL DYES FROM THE STEM BARKS OF GAN SURIYA (*THESPIESIA POPULNEA*) AND MAILA (*BAUHINIA RACEMOSA*)

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ABSTRACT

The study was carried out to use plant sources to extract natural dyes for textiles. It is focused on the stem barks taken from two commonly available trees in Sri Lanka as sources. The selected trees are Gan Suriya (*Thespesia populnea*) and Maila (*Bauhinia racemosa*). Gan Suriya is an evergreen perennial tree belonging to Malvacea family which is spread in many areas. Maila is a deciduous tree grown in dry areas which belongs to the Fabacea family. In the present study, dyes were extracted from the dried cut bark chips using aqueous extraction method. To analyse the best colour yield, extraction was done at different pH conditions, different temperatures and over different time periods. It was found that the best colour yield can be achieved by alkaline extraction at temperatures close to 100°C and time periods over 30 minutes. The extracted dye liquors were used to dye de-sized and bleached cotton fabrics. Dyeing was carried out by pre-mordanting method, using commercially available three metal salt mordants, namely copper sulphate, ferrous sulphate, alum and one natural mordant, Sepalika flowers. Different shades could be obtained by using different mordants. Experiments were carried out to find out the optimum dyeing time and optimum dye steeping time. To evaluate the dye affinity at different pH values, the pH of the dye liquor was adjusted to alkaline and acidic states during dyeing. Results were assessed using a colour assessment cabinet and grey scale for assessing staining. The staining differences were least between different dyeing time durations. Deep shades were obtained by steeping the samples in the dye liquor over 6 hours and increasing the alkalinity of the dye liquor during dyeing. Fastness to light and washing of mordanted and non-mordanted dyed samples were carried out. Washing was done using the beaker dyeing machine over 45 minutes at 50°C. Colour fading of dyed samples due to both light and washing was assessed by using the grey scales for assessing change in colour. Results revealed that the wash fastness of both the dyes was improved by the mordants and the light fastness of both the dyes was moderate even after mordanting. Finally the suitability of fabrics dyed with Gan Suriya against skin infections, such as eczema was tested and confirmed. The dye extracts from Gan Suriya and Maila have been confirmed as suitable for dyeing cellulose based fabrics.

Keywords: *Thespesia populnea*, *Bauhinia racemosa*, cotton dyeing, mordanting, colour fastness

Supervisor: Senior Prof. W. A. Wimalaweera

EFFECTS OF ONLINE LEARNING ON SPORTS-BASED EDUCATION FOR ATHLETES IN SRI LANKA

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ABSTRACT

This study examines the effects of online learning on sports-based education for athletes in Sri Lanka. Athletes highly captured their knowledge practically with coaches. The teaching learning system transits with teacher-centered to student-centered before mixed mode rooted in teaching learning process from the past decades. Today, it's became e-learning system with extra attention proffering to the developing technology. This relationship can be identified as a social development factor in the modern society merely sports-based education consists with more practical knowledge. There for this circumstance needs a specific attention to identify the effects of e-learning for the athletes. According to the collected data by open-ended questions, the methodology was constructed for this research study. All the original data of this study were collected from dispensing questionnaire to the randomly selected athletes under the topics of awareness and facilities about e-learning and their satisfaction regarding the online learning related to sports as a practical subject. Results shows that the most of athletes have an dissatisfaction concerning e-learning leads to athletes less awareness about technology, less internet facilities provisions and mostly of their high believes, relationships and traditional teaching learning process with coaches. Furthermore allocating technological awareness sessions and switching athletes' minds to acquire supreme benefits through e-learning may strengthen the online learning system in Sri Lankan society.

Keywords: sports-based education, e-learning, technology

ENHANCE BODY CONTOURED WOVEN OCCASIONAL WEAR, INSPIRING FROM PERFORMANCE WEAR PRODUCTION

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ABSTRACT

Studies have confirmed, most of the women face many difficulties when choosing stylish occasional wear, because of they could not wear them with an appropriate bra. Visibility of bra straps and discomfort when wearing stylish occasional wear become main problem when selecting perfect stunning occasional wear. Performance wear techniques ensure good upward support, limited breast motion and comfortability. There are precise pattern cutting and garment construction techniques are used in performance wear manufacturing. Bras are in-built in most of the performance wear products. This research focuses on identify woven body contouring fashion market in Sri Lanka, identify customer need of alleviating wearing a separate bra with occasional wear, examines performance wear pattern cutting and construction techniques and check the possibility of applying them to woven body contour occasional wear manufacturing. The aim of this research is to introduce woven body contouring wear bodice alleviating the need of wearing a separate bra inspired from performance wear techniques. This research discusses the analysis of data that gathered using questionnaire survey, performance wear and occasional wear product survey and experiments based on various experiments. The proposed woven body contouring experiments developed by exploring performance wear techniques and applied them to woven fabric flat pattern cutting and conducted a fit evaluation to identify upward support, comfortability and aesthetic values. All results indicated woven body contoured wear with in-built breast support can be achieved from performance wear pattern cutting and construction methods and elasticated adjustable back methods without fastenings.

Keywords - Sports performance wear, woven fabrication, Body contoured wear, Inbuilt support

STUDY ABOUT DRAMATIC ART IN ANCIENT SRI LANKA

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ABSTRACT

Some are hesitant to admit that there was a Dramatic art in ancient Sri Lanka. But there are evidence to prove that there was an advanced Dramatic tradition from Pre-Buddhist period to Kandyan period. The question of this research is, whether there has been Dramatic Art in Sri Lanka since the Pre- Buddhist era. By examination sources from Pre-Buddhist era in order, can be founded the answer to this research problem. Literature surveys and archaeological sources were studied as the methodology of this research. In that case primary and secondary sources were studied under literature sources. Under primary sources “Mahawanshaya”, “Sadhdharmalankaraya”, “Natya Shashtra” and “Sahassa Watthupakaranaya”, “Dathu Wanshaya” were studied. Under secondary sources few books were studied. Inscriptions, action building and sculptures were studied archaeological sources. According to the available data, it was revealed that there was an advanced Dramatic Art from the Pre-Buddhist period to Kandyan period.

Keywords: Dramatic, Sri Lanka, Kandyan period, Archaeological, Sources

WHAT IS PERFORMATIVE DRAWING? AN OVERVIEW ON NANCY AND KANT'S IDEAS UNDERLYING PROCESS ORIENTED DRAWING PRACTICES

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ABSTRACT

Performative drawing is a contemporary art movement that seems to be gaining worldwide importance over the last decades. An increasing number of artists are focusing their practice-based research on this art trend that explores the intersection between performance and drawing in process oriented practices. However, very little theoretical research has been undertaken upon this topic. In a recent paper, Luzar (2017) has examined the 'graphic trace' as marks left from physical actions and evaluated whether they could be understood as a 'visual expression of thought' by linking them to Bergson's notion of multiplicity. However, no studies have examined the implications of the ideas of Jean-Luc Nancy and Emmanuel Kant in relation to this art practice. The purpose of this paper is to shed some light on our understanding of performative drawing by using a multidisciplinary approach that combines an analysis of the ideas of these two philosophers and a critical revision of two key art works. The study aims to identify the general characteristics of such an art practice and some key philosophical concepts that underlie it. The results suggest that performative drawing should be regarded as an art practice in which the artist embodies a formative force that emulates the way in which nature creates, rather than copying an external reference. The findings of the study may provide artists, scholars, and curators with a deeper understanding to analyse this type of art practice.

Robert Luzar (2017) Rethinking the graphic trace in performative drawing, Theatre and Performance Design, 3:1-2, 50-67, DOI: 10.1080/23322551.2017.1327559

Keywords: performative drawing, formative force, process-oriented practice.

COVID-19 AND ELEARNING: ATTITUDES OF UNDERGRADUATES TOWARDS THE USE OF ONLINE SUMMATIVE EXAMINATIONS IN SRI LANKA

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ABSTRACT

The COVID-19 led to profound changes in the education sector in Sri Lanka. The practice of social distancing to reduce interpersonal contact led to the closure of many State and non-State higher education institutes while shifting to “emergency eLearning systems” (Murphy, 2020). This study focuses on the attitudes of undergraduates in tertiary education contexts about the use of eLearning systems to conduct online summative examinations in Sri Lanka. This qualitative/ quantitative inquiry focused on both male and female undergraduates from State and non-State universities from three faculties. The data for this study were gathered via interviews and questionnaires given to 80 undergraduates from three faculties of four universities in the Colombo district. The findings of this study show that most of the universities use online Learning Management Systems (LMS) to conduct online exams. Majority of the respondents believe that the online exams are an alternative to physical exams held in examination centers. 60 per cent of the respondents stated that the types of questions given in online exams mostly vary from multiple-choice to short answer questions. 80 per cent of the respondents stated that the papers contained essay type questions. Often, the time duration of these question papers are 3 to 4 hours. Most of the respondents had to upload the scanned copies of the handwritten answers to the relevant servers within an allocated time period of the finishing time. The lack of sophisticated online tools and internet connection issues and the inability to clarify doubts and queries during the exams are the main issues that the majority of students have recognized as the challenges when facing online exams.

Keywords: Covid-19, Online Exams, Undergraduates, Universities

DEVELOPING A “READY TO WEAR” SARI BLOUSE USING APPROPRIATE FABRICATION AND PATTERN CUTTING METHODS

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ABSTRACT

“Sareeya” is the commonly used office attire and & occasional wear in Sri Lanka. However, inaccurately fitted saree blouse is a significant problem. Therefore, it is essential to improve the fit of the saree blouse. The existing problems of saree blouse were identified using an online questionnaire. This study explored various methods of developing the saree blouse and presented reasonably accurate product using pattern cutting techniques and the correct raw material selection. The secondary research was carried out to examine, relevant shapewear techniques in the current market and new inventions. In addition, shop visits were used to investigate the drawbacks of ready-to-wear saree blouse which are currently available in the market. Therefore both quantitative data & qualitative data were used for final analysis. In addition experimental research method carried out for fulfill final outcome. All the findings were used to design the experiments to develop the proposed saree blouse based on right selection of raw materials, pattern cutting methods and proper construction methods. Triple cut saree blouse style was selected as the core style. Final samples constructed according to experiments and made subjective wearer trial as a validation. Ease, the number of wrinkles & seam line deviation were the criteria that have scored. It was revealed that interesting pattern cutting techniques that can apply to enhance the fit of the saree blouse. This study can develop further to find out more advanced methods to improve the fit, however the final product outcomes need to be validated with the cost of manufacturing.

Keywords: Experiments, fit of the saree blouse, pattern cutting techniques, raw materials, subjective wearer trial

EXPLORING THE TECHNIQUES OF CHANGING THE OUTER APPEARANCE OF SRI LANKAN WOMEN'S BODY SHAPE THROUGH GARMENTS

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ABSTRACT

A study was carried out on exploring techniques of changing the outer appearance of body shapes of Sri Lankan women as they desire, without using uncomfortable inner garments and expensive custom-made garments. Although there are different techniques of changing the outer appearance of the body shape as they desire, this study focused only by selecting proper colours and with most efficient usage of their existing accessories and garments providing mass-market level solutions to women who are unable to find unique solutions due to financial status and lack of knowledge regarding fashion theories. Further, the explored solutions can be applied with day to day life experience and knowledge within a country like Sri Lanka which is a multinational country with different perspectives of clothing styles. An online survey has been conducted with more than 100 women who use branded garments and mass-market garment. Within the survey ordinary methods that are used for this problem has been identified but most of them are expensive and custom-made solutions. The need for a mass-market level solution is highly observed and unawareness of women regarding the subject is also noted. Through experiments, novel solutions which are mass market-oriented low-cost solutions were suggested to be used in day to day fashion styles. This study will provide a good foundation for apparel manufacturers who cater to Sri Lankan market, to fill this market gap.

Key Words-Women body Shape, Effect of Colour, garments in different look

PLUS SIZE CLOTHING CHALLENGES AND NEW OPPORTUNITIES FOR ATHLEISURE WOMEN'S WEAR

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ABSTRACT

Being a plus size middle aged woman is a special confidence level, because they concentrate about their health while accepting the fact that they are oversized. To continue an active lifestyle, they have been created a market demand for athleisure wear not only because of the health conscious lifestyle but also it is an acceptable dress code in the working environment to live a fashionable lifestyle. Initially, plus size women's wear have been explored and the data collection was focused in Sri Lankan market. The FEA model was followed to investigate the product attributes and presents the requirement analysis of such clothing. The fear of getting non-communicable diseases (NCD), being busy at work place and lack of time to do exercises, fashion consciousness and high BMI rates motivates plus size ladies to get engaged in activities like jogging, cycling and yoga. Further this study expected to explore the potential opportunities in plus size athleisure market and present the requirement analysis for product design & development. Qualitative research methods were utilized mainly a survey conducted by meeting the relevant participants and extended further open-ended questions by face-to-face interviews with them. Mainly, wearer's responses were collected in their buying behaviour, problem identification and customer satisfaction, consumer preferences in athleisure category. This study has found out that most of the Sri Lankan plus size middle aged ladies are working women who are busy with their routine and unable to utilize effective time for physical exercises. As preferences, they will be worn black or any dark color, cotton knitted fabric, functional & fashionable athleisure wear not only as a workout wear but as a whole day wear.

Keywords: - Athleisure, FEA model, Plus size clothing, Product attributes

INFORMATION SECURITY MECHANISM USING MUSIC THEORY AND ITS TRAITS

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ABSTRACT

Data Communication plays a vital role in the Information and Communication Technology era. The new technologies have changed the conventional manner of information exchange with the advancement of information and communication technology. Music, fine art, or an art of ordering tones and sounds in succession and in combination that's concerned with the medium of sound and can be created using musical instruments with musical notes to produce splendor of harmony and expression of emotions. In this era, the demand for securing information is particularly needed and maximum favored. Some attributes of the musical concepts have been used in securing information exchange in the form of cryptography from the early days. Presently, Music is immeasurably utilized in securing information with the utilization of steganography. The craft of scrambling and covering messages utilizing music is named as Musical Steganography. Further melodic musical notes have been utilized as codes and keys for information security. The covering up is actualized by planning a mechanism for the encryption of a piece message into music utilizing its traits and the decoding in the other way around. In this paper, we propose a mechanism that changes over the bit into melodic notes by utilizing some numerical properties used in musical notes. Further, this study ensures the two-level safety efforts by utilizing the Musical Cryptography and with Musical Steganography strategies. In this way, the security of the message improves through the proposed mechanism.

Key words: Steganography, Cryptography, data security, information hiding, Musical steganography

THE IMPACT OF SOCIAL MEDIA ON THE ACADEMIC PERFORMANCE OF UNDERGRADUATE STUDENTS IN SRI LANKA

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ABSTRACT

Social networking is an expression of the 21st century used broadly to define a number of technological tools that stress the social facets in form of a funnel for communication, collaborative learning, and inventive expression; this is also to boost education in higher institution of learning. Consequently, academic activities in Sri Lankan universities are increasingly carried out through social networks during the Covid19 pandemic. Many studies have addressed different aspects of using social networking at various academic and social levels. The accessible literature on social media provides useful suggestions of its application in higher institutions of education. The purpose of this study was carried out to determine the impact of social media on academic performance in higher education system of Sri Lanka. The data for this study was collected using a method of survey questionnaire that were administered on 100 undergraduates. The age-range of the respondents was between 20 and 25. The sample space consisted of 61 males and 39 females. The best correlation was found between the students' satisfaction and students' academic performances with correlation coefficient of 0.679 ($r = 0.679$, $p < 0.01$). Result of Pearson correlation indicated that there is statistically significant positive relationship between interactivity with the teachers and interactivity with peers. The results attained suggest that research model provided a powerful explanatory energy of social media academic satisfaction for among students. In the results acquired, it may be concluded that social media facilitates the academic experience with the majority of the participants.

Keywords: Social media, academic performance, higher education

ANALYTIC SERIES SOLUTIONS TO ORDINARY DIFFERENTIAL EQUATIONS

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ABSTRACT

In this research, some series solutions are found to ordinary differential equations. ODE solution may not be expressed as a single function or single value, that is those were in the form of finite or infinite series of variables or functions, noted that many of the are such mentioned. In this research some limitations are introduced to the existence of solutions and analytic solutions particularly for nonlinear case. Different kind of methods and modified methods using to find analytic solutions are introduced. In series solution the radius of convergence also to be found. Some guaranteed efficient ideas are used to find radius of convergence are given. Some important theorem are proved in order to get the result. Several initial value problems are analyzed and results are noted.

Keywords: Radius of convergence, Series solution, Non Linear differential equations.

LEARNING ONLINE IN THE WAKE OF COVID-19

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ABSTRACT

The COVID-19 outbreak has caused many unprecedented challenges and restructured higher education in the world. Many countries have imposed emergency protocols such as quarantines, lockdowns, curfews, travel restrictions and social distancing measures and closed educational institutions temporarily in an attempt to minimize the risk of spreading COVID-19. Education continues online rather than face-to-face in many countries due to this global disaster. Around the world, countries are striving to ensure the progression of learning. Shifting education from face-to-face to online in response to a global public health emergency is an indispensable solution, but it comes with a lot of challenges. This paper seeks to explore and describe the attitudes and perceptions of undergraduate students of an institution towards online learning during COVID-19 pandemic, how the transition from face-to-face learning to online learning is going on and what kind of assistance learners require at this moment. Data was collected through survey and interviews. The findings of this study will be useful to mitigate the loss of learning and well-being during crisis by identifying the difficulties encountered by learners in online learning during COVID-19.

Keywords: Attitudes, Online learning, COVID-19, Learners

MOTIVATION TO LEARN ENGLISH VIA ONLINE DURING NOVEL COVID 19 PERIOD

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ABSTRACT

This study investigated the motivation to learn English via online during the COVID 19 period. Dramatic change has occurred in online learning due to the fall of COVID 19 in Sri Lanka. In fact, this study aimed to find the motivation of Sri Lankan learners to learn English via online. Mixed method approach was applied to collect data from the participants of secondary and tertiary levels. Adapted online motivation questionnaire consisted with 60 items was used to collect data from 150 participants. Interviews were conducted for randomly selected participants to examine the motivation profile further. SPSS correlation analysis was conducted to find the basic relationships of L2 Motivational Self System. The results have shown that Sri Lankan learners' ideal L2 self is stronger than the ought to L2 self and learning experiences. In contrast to earlier findings this study found strong positive correlations between the motivation and the ought to L2 self and learning experiences. Surprisingly, Sri Lankan learners motivated to learn from formal English classroom than the online English learning classroom. This is an important issue for future research. Furthermore, these learners use internet for self-English learning purposes, using social media in English, and entertainment purposes. Finally, this study suggests the importance of having a proper policy for online learning in Sri Lanka to facilitate the learners for better learning.

Keywords: L2 motivation, Online English Learning, Novel Covid 19, L2 Motivational Self System

DOES CREATIVE TOURISM CONTRIBUTES TO CREATIVE ECONOMY OF A COUNTRY? A REVIEW OF RECENT RESEARCH

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ABSTRACT

The world economy continues to evolve and the ‘creative economy’ coined by Prof. John Howkins is considered a phenomenon of the 21st century’s economy having both commercial and cultural value (UNCTAD Report, 2018). The creative economy is made up of ‘creative industries’; art, culture, design, entertainment, media and innovation and ‘tourism’ is also considered one such creative industry (Richards, 2011 p.1). The term ‘creative tourism’ introduced by Richards and Raymond is often seen as a form of or an extension of cultural tourism. The predominant feature differentiating creative tourism is ‘active participation’ of travellers in the culture of the host community in comparison to cultural tourism that is passive. Though countries around the world continue to embrace creative tourism, its contribution towards a creative economy of a country is yet to discover. By analysing recent papers on creative tourism, this paper attempts to assess the stake of creative tourism in a creative economy of a country. The specific objectives addressed in this review are; (a) what is the contribution of creative tourism towards a creative economy of a country? (b) which creative industries facilitate the development of creative tourism in a country? The review found that creative tourism contributes some way to all four dimensions of a creative economy: Economic, Social, Cultural and Sustainable development and creative industries that fall under the UNCTAD categories of Heritage (traditional cultural expressions, and cultural sites), Art (visual art and performing art), and Functional creations (design) predominantly facilitate creative tourism development of a country.

Keywords: creative economy, creative tourism, creative industries

USE OF INFORMATION COMMUNICATION TECHNOLOGY FOR BUSINESS MANAGEMENT IN MINING & MINERAL INDUSTRY

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ABSTRACT

For a business to sustain its functionalities should manage throughout the lifespan of the business. To facilitate effectiveness, the technology can assist. The mining and mineral industry regulated by Geological Survey and Mines Bureau (GSMB) is a technologically unattained industry. It is not easy to track transactions in real-time using manual bookkeeping in rural, rustic environments. Hence, the GSMB introduced the Mining & Mineral Production (mmPro) Monitoring Solution which can be operated using Web, Mobile Application and SMS. This solution keeps records, verifies and validates sand dispatch data against issued mining licenses. The pilot started by GSMB Technical Services (GSMBTS) at 210 mining sites along two Mahaweli river banks closer to Manampitiya Bridge still run with 100% track of all transport vehicles. The officers of both GSMB and GSMBTS now oversee the site that operates more than 400 lorries at peak. The use of mmPro has leveraged to perform better pattern analytics, such as where the dispatch loads are going, what are the most demanding days and hours of the operation. With this initiative, GSMB has gained the viability to the royalty payment in real-time. This solution can be extended to effective queue management at the sites. With evolution, GSMB can upgrade mmPro to serve on-demand orders letting end customers to reserve and receive sand with the fullest reliability through their own transportation. Hence, deploying technologies within the mining and mineral industry increase its calibre and sustainability as an industry.

Keywords: Business Management, Information Communication Technology, Mineral & Mining Industry

**EFFECT OF COMPETENCIES OF FRESH GRADUATES ON EMPLOYABILITY
IN PRIVATE SECTOR NON-STATE DEGREE AWARDING INSTITUTIONS
WITH SPECIAL EMPHASIS TO COLOMBO DISTRICT**

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ABSTRACT

It has been observed that majority of fresh graduates in Sri Lanka have been unemployed or underemployed in past years. According to fresh graduates' perspective, required skills and qualifications to obtain employment are presents but still are being overlooked by organisations. Afore mentioned is an indication that there is a disparity between expectancy of the recruiter and competencies of fresh the graduate and being addressed as the key knowledge gap of the research paper. The main objective of this research was to identify the relationship between competencies of fresh graduates and employment opportunities exist from recruiter's perspective. Study has focused on areas to be improved by fresh graduates in Sri Lanka who are expecting to obtain employability in higher education sector and to make recommendations based on the recruiters' perspective. The study was conducted based on KSA model and personal traits of fresh graduates. The study has been designed with the epistemological standpoint of positivism and with a deductive approach. The study was conducted using staff from selected private sector non state degree awarding institutions in Colombo district. Selected sample included experienced academic and non-academic staff comprising 51 individuals. Data has been collected through a structured questionnaire and quantitative methods utilised. The study revealed that there is a relationship between knowledge, Skills, Attitude and Personality Traits of fresh graduate on employability. The findings demonstrate that recruiters' expectations are higher in more specific areas under KSA factors and Personality traits which led to fresh graduates' un-employability in the Sri Lankan context.

Keywords: KSA model, Personal Traits, Employability, Fresh graduates, Recruiters.

**BRIDGING DIGITAL DIVIDE IN THE AGRICULTURE SECTOR USING
INFORMATION COMMUNICATION TECHNOLOGY: CASE IN SOUTHERN
PROVINCE OF SRI LANKA**

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ABSTRACT

Information Communication Technology (ICT) is integrating in almost all the fields and provides competitive advantages in business. Rapid development of these fields creates a gap known as “Digital Divide” between those businesses that adopt such technology. Even though agriculture is one of the major contributors in the Sri Lankan economy, still the application of ICT is different among the organizations. The purpose of this study was to examine empirically the current status of adoption of ICT and in turn to identify the gap in the agriculture sector in Southern province of Sri Lanka and the factors affecting this behavior. A questionnaire based survey was conducted to collect the data from 104 agricultural organizations of this province covering all three districts vitz. Galle, Matara, and Hambantota. Three indices namely “Basic ICT Adoption Index”, “Intermediate ICT Adoption Index”, and “Advanced ICT Adoption Index” were developed. In addition Digital Divide Index was derived to find out the status of organization of using ICT based on the Innovation – Diffusion Theory. Multiple Linear Regression was carried out to determine the relationship between level of adoption of ICT and two explanatory variables namely age and education level of the owners of the organizations. Most organizations were adopted by basic ICT facilities. The results show that these organizations did not become innovators, early-adopters or early majority of adoption of ICT. The regression analysis highlights that the age and education level of owners have a positive relationship with the adoption of ICT in their agricultural organizations.

Keywords: Adoption, Digital divide, Information Communication Technology

TOURISTS' INSIGHTS ON CONSERVATION AND MANAGEMENT PRACTICES OF HIKKADUWA CORAL REEF

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ABSTRACT

Hikkaduwa Marine National Park is one of three marine national parks in Sri Lanka and it consists with fringing coral reef. It is one of major tourist hotspots in Sri Lanka. Since sustainable utilization of natural ecosystem for the economic development is a vital requirement, tourists have to aware about applied management and conservation practices to this ecosystem. Thus this study was designed to study about tourists' perception on management and conservation practices of Hikkaduwa coral reef and to get their suggestions to improve lacking parts of management program. Study was done through a pre-designed and a pre-tested questionnaire. Thirty tourists including local and foreign interviewed using random and systematic sampling techniques. Majority of tourists (70%) were foreigners and only 30% of interviewers were locals. All respondents (100%) were satisfied with the clean beach and collection of garbage separately as degradable and non-degradable materials. Only 40% of foreign tourists were aware about coral reef restoration program and relatively small amount (5%) of local tourists were aware about it. Moreover none of local tourists haven't an idea about the concept of marine national park before they visited to here and 45% of foreign tourists had knowledge on concept of marine national park before their visit. Overall 65% of respondents suggested to reduce number of glass bottom boat usage and to promote exploration of reef with snorkelling and diving. Since lack of awareness of tourists about value of this ecosystem has been identified awareness programs have to be introduced.

Keywords: Hikkaduwa Marine National Park, Sustainable Utilization, Tourism

THE INFLUENCE OF CUSTOMER PERCEPTION ON LOYALTY TOWARDS AN ORGANIZATION. A SPECIAL REFERENCE TO THE FMCG AND BANKING SECTORS IN SRI LANKA

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ABSTRACT

The customer perception is a concept that mainly includes the customer's impression, the awareness of the customer and the consciousness of the customer's towards the goods and the services provided by the organization. The paper mainly looks into how the brand, price, usability and stability, promotional activities and the quality of the products and service influences the customer loyalty in an organization. The main problem which is been identified by the study is the loss of customer base gradually over the years very specially for the FMCG sector and the Banking sectors in Sri Lanka. Keells Pvt Ltd is been selected to delineate the FMCG sectors in Sri Lanka and Sampath Bank Plc is been considered in the study to epitomize the Banking Sectors in Sri Lanka. The study mainly addresses the factors such as the price, quality and the promotional activities which acts as the determinants of the customer perception as the gap notified from previous researchers. The study is been conducted for 300 customers selected through simple random sampling using pragmatic philosophical stance along with a deductive approach. The data are been collected through a mixed method approach. The study confirms that the brand, price, usability, quality and promotional activities has an impact towards the customer loyalty within the firm. The paper is been concluded with key recommended approaches which mainly includes the modern management styles and Marketing tactics which are applicable for most of the organizations operated in the in the Developing Nations.

Keywords: Perception, Loyalty, Brand, Usability, Stability

ESTIMATING TOTAL FACTOR PRODUCTIVE EFFICIENCY AND ITS DETERMINANTS: EVIDENCE FROM PADDY FARMING IN SRI LANKA

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ABSTRACT

This study investigates the components of farm level total factor productivity and its major influencing factors across farmers in Mullaitivu district, Sri Lanka. The primary data was collected from five villages with the total sample of 120 paddy farmers during the period 2018 and 2019. Hicks - Moorsteen total factor productivity index is estimated and decomposed into various efficiency components and the result suggests that the farmers attained the total factor productive efficiency at 38% in 2019 which is less than in 2018. However, input – oriented technical efficiency was found to be higher than input – oriented scale efficiency and residual mix efficiency in 2019 which reveals that paddy farmers are relatively able to obtain gains in productivity from altering their inputs than scale and mix efficiency. Across farmers, the average total factor productive efficiency is 95% which is less than other efficiencies and among them, input oriented scale efficiency is higher over the study period. Tobit model is applied to examine the impact of demographic and farming characters on total factor productive efficiency and its results implied that education, amount of saving, loan amount, land quality and income from farming were the major determinants which are positively impact on total factor productive efficiency. Among these variables, the farmers who received more loan and the farmers who are maintaining the quality on land have more probability to increase the efficiency of paddy farming in the study area. Strategies to improve productive efficiency in paddy farming should emphasize on the improvements in other components that induce the farmers to alter their inputs accordingly.

Keywords: Hicks - Moorsteen index, input oriented scale efficiency, input – oriented technical efficiency, total factor productivity, tobit model

IMPACT OF GLASS CEILING EFFECT ON SERVICE SECTOR EMPLOYEES: A CONTEMPORARY LITERATURE REVIEW

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ABSTRACT

The unacknowledged barrier to advancement affecting females called Glass ceiling is still linger and it is a constant battle for many women in service sector industries. “The Great Man Theory” was followed in early decades where many women were rejected at work place due to different behaviors and attitudes of women by nature. The service sector is a male dominated sector which is a common characteristic in many other industries since early ages. There is a growing concern that females are being discouraged from advancing their careers even though things are rapidly changing in favour of female employees due to non-labor intensive technology and employment opportunities for knowledge workers. This paper aims to identify the causes of the glass ceiling effect in the contemporary service sector affecting career advancement of female employees. In this paper authors have systematically reviewed the contemporary publications on glass ceiling effects published between years 2010 and 2020. The methodology engaged to develop the paper was in line with multi-journal systematic review methodology, which reviewed publication of multitude of journals. A total of 80 papers were selected in this period, and 59 were reviewed for this study. Authors were focused on obtaining insights that would be necessary for further researches to further develop the research design and develop hypothesis to be tested in a wider context. This paper concluded that gender personality traits, organizational human resource practices, societal barriers and government barriers causes the glass ceiling where it intensively impacts on women’s career progress.

Keywords: Glass ceiling, Gender discrimination, women advancement,

DEVELOPMENT OF A TEA ENRICHED WITH SAFFRON (CROCUS SATIVUS)

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ABSTRACT

Tea can be known as the most popular non-alcoholic beverage. Tea is derived from the tea plant *Camellia sinensis* that is cultivated in many countries including Sri Lanka. Flavor enhanced tea and herbal tea are two main value added tea types emerged into the global tea market recently. This study is focused to develop a tea which is enriched with saffron (*Crocus sativus*). Tea leaves and soft dormant shoots were obtained from Galle, one main tea growing area in Sri Lanka. They were cleaned, shade dried for two weeks and a few formulae were prepared mixing with dried saffron stigma. After a few trials, three formulae were tested using 30 untrained panelists to identify the most accepted tea formulation via five-point Hedonic scale sensory evaluation. MINITAB-Kruskal-Wallis was used for the analysis of panelists' scores for each formula. The analysis concluded that the formulation of tea 1: saffron 100 has the highest scores of acceptance. The developed tea was analyzed for its moisture contents (MC), Total Ash (TA), Crude Fiber (CF) and also microbial analysis were performed. The results were compared with the quality parameters given in the ISO standards. The average values were TA 6.37%, CF 21.0 % and MC16.32 %. Results for total plate count and Yeast and mold were 4.90×10^3 cfu/g and 9.90×10^2 cfu/g respectively which were lower than the maximum limits of the hygiene specifications mentioned confirms that the product is safe for the consumption.

Keywords: Tea, Saffron, Total Ash, Crude Fiber, Moisture

HS 87 EXPORTS BEHAVIOR OF GERMANY, JAPAN AND UNITED STATES OF AMERICA FROM 2015 TO QUARTER ONE 2020

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ABSTRACT

Exporting Vehicles and their parts, accessories is a key component in world exports market. Harmonized commodity description and coding system discusses about Vehicles other than railway or tramway rolling stock, and parts and accessories under 87th chapter. As vehicles and their parts and accessories vital in world economy this study discusses about the exports behavior HS 87 exports of Germany, Japan and United States of America from 2015 to 2019. Further the study focuses about the behavior HS 87 exports behavior of Germany, Japan and United States of America during quarter one in 2020 in which Covoid-19 negatively impacted to world economy. Mathematical calculations are used in the analysis to observe the behavior of exports categorized under HS 87 of Germany, Japan and United States of America. According to the findings Germany, Japan and United States are the top three exporters under HS87 from 2015 to 2019 and they owns more than 35% of share with respect to the total world exports of HS 87. Germany has declined HS87 exports by 14.70%, Japan has declined HS87 exports by 6.89% and United States of America has declined HS87 exports by 7.95% during quarter one quarter one, 2020. HS8705, HS8702 and HS8711 products own the highest decline rates for Japan, Germany and United States of America respectively in quarter one 2020. HS 8703 does the highest contribution to the decline reported under HS87 for Japan and Germany and HS 8708 does the highest contribution to the decline reported under HS87 for United States of America during first quarter 2020.

Keywords: HS87 exports, vehicle exports of Germany Japan United States of America, Vehicle exports during COVOID-19

**PROMOTING SUSTAINABLE MARINE TOURISM; A CRITICAL ANALYSIS OF
SRI LANKAN REGULATORY & INSTITUTIONAL FRAMEWORK TOWARDS
INTEGRATING FISHERIES INTO TOURISM**

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ABSTRACT

Sri Lanka is blessed with plentiful marine resources with a high potential value for both fisheries and tourism. However, current decline in productivity of ocean threatens the wellbeing of fishing communities and falling revenues put income and economic stability at risk. Particularly, there is a serious anticipation on small-scale fishing in coastal-zone amounting to approximately 50,000 single-day fishing vessels. Marine tourism results in traditional fishing activity diversification and generating alternative high-income streams. It reduces the stress of fishing activities and contributes to the sustainable management of fishery resources. Especially the approach of marine tourism activities seems to have been proposed or practiced in many developing countries. Thus, the study was conducted with the objective of identifying barriers, institutional requirements, policy/regulatory gaps towards marine tourism in Sri Lanka and finding the appropriate solutions. The study was utilized real local case studies, relevant key stakeholder consultations, expert interviews, policy and regulatory analysis. It was observed that there are regulatory and institutional limitations in governing frameworks, conflicts between cultural/social factors, political struggles, market issues and capacity concerns. Despite the deficiencies, it was observed that there are proven sustainable marine tourism practices in several areas including Mirissa and Kalpitiya. Recurrently, it showed the compulsion of a distinct upgrade of the regulatory and institutional framework proving the supportive policy environment. Moreover, it is significant to establish a mechanism for ensuring market penetration, enhance the community capacity and introduce economical-activities. The study affirms that integrating fisheries into tourism with a holistic approach will be mutually beneficial.

Keywords: Fisheries, Tourism, Sustainable, diversification, regulations

TOWARD EFFECTIVE UTILIZATION OF SOFTWARE SYSTEMS BY STATE OWNED BANKING SECTOR EMPLOYEES: A CASE STUDY FROM SRI LANKA

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ABSTRACT

Banking sector is one of the main driving forces of a developing economy. At present banking operations are highly dependent on technological advances to be competitive in the industry. In the past decade, investments in information technology has been increased exponentially as state owned banks attempt to implement sophisticated software and hardware solutions to provide effective customer services. Without assuring a high degree of utilization of implemented technologies banks will not be able to gain the return on their investment and sometimes it may lead to loss of the business. It has been identified that there is a reluctance in utilizing new software systems among banking sector workers leading to numerous internal issues and customer dissatisfaction. Main objective of this study is to make an investigation on influential factors affecting utilization of software by bankers in a Sri Lankan context by adopting the Unified Theory of Acceptance and Use of Technology (UTAUT) as the conceptual framework and make recommendations to systems developers. This quantitative research has been carried out with using a five point Likert scale questionnaire to gather insights from 355 individuals employed at the largest state owned bank in Sri Lanka. In selecting the sample, systematic sampling was used to select respondents from a population of 2,684 employees who are accessing software solutions for core banking functions. The most significant finding of the research was that reluctance to use the systems being identified as originating from the lack of awareness of functional benefits using a software system.

Keywords: UTAUT model, State banking sector, System utilization

DOES HEALTHCARE SEEKING DIFFER BECAUSE OF HAVING NON-COMMUNICABLE DISEASE? DATA FROM A HEALTH DIARY STUDY

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ABSTRACT

Having a non-communicable disease (NCD) affect the way people perceive symptoms and the actions taken to alleviate the symptoms. How the NCDs affect the general healthcare seeking will be interesting to find out. In 2 Medical Officer of Health areas, 6 midwifery areas were randomly allocated, and households were selected using cluster sampling. Symptom data was recorded using a symptom diary for one month with the actions taken. Symptom reporting and healthcare seeking behaviour was compared among the people with NCDs and without. From 2046 participants there were 544 (26.6%) with at least one NCD. 345(63%) were females. 524(96.3%) reported at least one symptom and 275(52.4) sought care, 159 times from government institutions and 145 times from private institutions. From 1502(73.4%) who didn't have NCDs, (782)52% were females. 1395(93%) reported symptoms and 649(46.5%) sought care with 329 visits to government and 392 visits to private institutions showing significant preference to the latter ($P < 0.001$). Symptom reporting and care seeking of the people with NCDs were higher than that of the people without NCDs and it was statistically significant ($p < 0.05$) when two tailed t test was applied. There were no significant difference in admissions to the hospital in both with NCDs (2.9%) and without NCDs (2.3%). Having at least one chronic disease significantly increased the symptom reporting ($p < 0.05$) and care seeking ($p < 0.05$) but there were no difference in hospital admissions compared to people without NCDs, who preferred private sector institutions for seeking care.

Key words: Non-communicable diseases, Health diary, symptoms, care seeking

PREVALENCE OF OVERWEIGHT, OBESITY AND HYPOTHYROIDISM AMONG HYPERTENSIVE PATIENTS AT TEACHING HOSPITAL BATTICALOA

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ABSTRACT

The aim of the study was to determine the prevalence of overweight, obesity and hypothyroidism among hypertensive patients. It was a descriptive study on 50 patients (28% were males and 72% were females) who follow the medical clinic at teaching hospital Batticaloa. Overweight and obesity were defined according to the cut-off values of body mass index (BMI) for Asian population. Thyroid stimulating hormone (TSH) level was used to assess the functional status of thyroid gland. Results showed, 8% were underweight, 28% were normal weight, 36% were overweight and 28% were obese among the hypertensive patients. 94% of the hypertensive patients had normal thyroid functions. 4% and 2% of the total population had hypothyroidism and hyperthyroidism respectively. Those patients with overweight, obesity and abnormal thyroid functions were reassessed clinically and further investigations and management were implemented. In conclusion the BMI distribution of the population sample revealed that more people that is 36% were predominantly overweight. Approximately 2/3 of the total population 64% is above the target BMI, which is overweight or obese. Furthermore, 94% hypertensive patients had normal thyroid functions. Only 6% of the population sample was abnormal in their thyroid status, which was not clinically significant. Therefore routine screening of hypertensive patients to assess their BMI is an important step as majority are above the target BMI. However routine screening of TSH is not recommended to all the hypertensive patients. Thyroid functions should be done only if clinically indicated.

Key words: Overweight, Obesity, Hypothyroidism and Hyperthyroidism

HIGH TECH TRANSGENIC APPROACH IN MODIFYING THE AEADES AEGYPTI VECTOR USING CRISPR/CAS9 TO CONTROL THE TRANSMISSION OF DENGUE

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ABSTRACT

Mosquitoes act as vectors of the world's most burdensome pathogens including malaria, chikungunya, and dengue. Dengue is an acute systemic viral disease caused by dengue viruses and primarily transmitted between humans by the mosquito vector *Aedes aegypti*. Due to the failure of conventional control strategies based on insecticides, novel interventions based on modification of the mosquito genome are currently being developed and implemented. The most recent of these advancements come as part of the CRISPR revolution. The clustered regularly-interspaced short palindromic repeats (CRISPR) structural family functions as an acquired immune system in prokaryotes. Gene editing techniques have co-opted CRISPR and the associated Cas nucleases to allow for the precise genetic modification of many species, including humans. The CRISPR system has been adapted for use in a range of mosquito vectors *Ae. aegypti*, *Anopheles stephensi*, and *Anopheles gambiae*. However, a stable transgenic line expressing Cas9 is yet to be discovered for the vector *Ae. aegypti*. In the current study, we describe the generation of stable, transgenic *Ae. aegypti* strains expressing Cas9 in the germline for constant and efficient genome modifications using CRISPR. The target is to disrupt the major sex-determining gene (*Aedes dsx*) essential for healthy morphological development. CRISPR–Cas9-targeted disruption of the intron 4–exon 5a boundary aimed at blocking the formation of functional *Ae. Aegypti* doublesex did not affect male development or fertility, whereas females homozygous displayed an intersex phenotype and complete sterility. The current methodology can be utilized for population suppression thus having control over the transmission of dengue.

Keywords: *Aedes aegypti*, dengue, CRISPR/Cas9

**DETERMINATION OF ESCHERICHIA COLI IN SPINACIA OLERACEA
(SPINACH) BY CULTURE, BIOCHEMICAL TESTS AND CHROMOGENIC
MEDIA**

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ABSTRACT

The consumption of leafy vegetables such as *Spinacia oleracea* (Spinach) has been expanded in recent years due to the healthy life style recommendations. However, spinach is highly susceptible to cause foodborne diseases as it is usually consumed raw or minimally cooked. To prevent foodborne diseases, it is required to limit bacterial contamination during the pre-harvesting and post-harvesting time periods. This study is mainly focused on detecting the presence of *Escherichia coli* in spinach samples because *E. coli* is the most common bacteria involved for causing wide range of infections. For this study, twenty-one fresh spinach samples were collected from local markets and supermarkets located at Maharagama, Boralesgamuwa, Dehiwala and Nugegoda areas of Sri Lanka. The samples were analysed by culturing on selective McConkey agar and biochemical tests, then cultured on chromogenic media for further confirmation of *E. coli*. As found from this study, 15.91% of *E. coli* were present in the purchased samples of all four regions. The highest *E. coli* percentage was identified from Dehiwala (31%) and *E. coli* were not present in the samples purchased from Nugegoda. Moreover, *Citrobacter* spp. (22.73%), *Klebsiella* spp. (22.73%), *Erwinia* spp. (20.45%), *Enterobacter* spp. (15.91%) and *Serratia* spp. (2.27%) were detected from the samples of all four regions. Although, samples were purchased from local markets and supermarkets under different storage conditions, significant difference was not observed in bacterial distribution. The hygiene and environmental conditions and handling practices had a direct impact for contaminating spinach with bacteria.

Key words: Spinach, *Escherichia coli*, Culture

THE INTEGRATIVE APPROACH OF SIDDHA MEDICINE IN COVID 19 PANDEMIC

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ABSTRACT

The COVID-19 pandemic is an ongoing viral pandemic of coronavirus disease 2019 (COVID-19), a novel infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). In the wake of the COVID - 19 outbreaks, entire mankind across the globe is suffering. The Integrative approach of COVID - 19 through Siddha medical system will give remarkable improvement in preventive, curative and rehabilitative aspect of health management. And Siddha Medicine recommends the following self-care guidelines for preventive health measures and boosting immunity with special reference to viral infectious diseases. Siddha System of Medicine is one of the ancient medical systems of the world. Its origin goes back to B.C. 10,000 to B.C 4,000 as per the textual and archeological evidences. The distinctiveness of Siddha System is evident by its continuous service to the humanity for more than 5000 years in combating diseases. As well as the Infectious diseases called as Kollai Noi, Ammai Noi or Vaisoori in different terminologies by our ancestors. The entire siddha system of medicine consists of Kaappu (Prevention and Protection), Neekkam (Remove the disease and disability) and Niraippu (Restoration of people to their full potential of good health) Kaappu method is equivalent of modern system – Community and preventive medicine. The four steps of Prevention that is mentioned in our ancient texts which can be related much to the preventive measures taken presently i.e. notification, isolation, quarantine and disinfection. The purpose of Siddha Medicine interventions during COVID-19 pandemic, the treatment can be categories into four such as Prevention though built the adaptive immunity, Specific prophylaxis for exposed Asymptomatic (Quarantined) group, Mild COVID-19 symptoms, moderate to severe COVID-19 symptoms of the distinct isolated people. This perspective, implementing the suggested intervention plan with healthcare facilities of Siddha Medicine will be given advantage the preventive and curative approach to human being greatly.

Key words: COVID-19 pandemic, Siddha System of Medicine, Prevention

**PHYSICAL ACTIVITY PATTERNS AND ITS ENVIRONMENTAL
ASSOCIATIONS AMONG SCHOOLTEACHERS IN SELECTED SCHOOL
DIVISION IN EASTERN PROVINCE OF SRI LANKA**

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ABSTRACT

It is a well-established fact that prevalence of physical inactivity is rising in global level in all stages of life with significant association for increased non-communicable disease burden. This study was conducted to describe the physical activity (PA) patterns and its environmental associations among schoolteachers in a selected school. A descriptive cross-sectional study was conducted among 392 government schoolteachers selected by multistage cluster sampling method in 2018. Sociodemographic factors, environmental factors and physical activity pattern were assessed by using a validated questionnaire including The International Physical Activity Questionnaire long version and Physical and Social Environment Scale and the level of physical activity was categorized as sufficient an insufficient group. chi-square and Mann-whitney U test were performed at a 5% level of significance. It was found that each participant on average spends 3005.7 (SD±2706.7) MET-minutes total energy per week. The main contributor to the energy expenditure was engaging in home cleaning and gardening [1516.9 (SD±1618.9) MET-minutes per week]. People engaging in job, transport, leisure related activity was less. Majority (85%) of the participants had sufficient level of PA. Overall physical and social environment was less favorable to engaging PA. Insufficient PA level was significantly associated among young and not having chronic disease teachers. There were not significant association found between PA level and environment. Despite the non- conducive environment, majority of schoolteachers in KED had sufficient level of PA. Young teachers and those who not having chronic disease did not meet the sufficient level of PA. Young teachers should be motivated to engage in PA. The facilities have to be arranged to motivate the teachers to participate job, transport and leisure related activity.

Key words: Physical activity, teachers, physical and social environment.

BLOOD MEAL INDUCIBLE PARALYSIS IN AEDES AEGYPTI: IN-SILICO APPROACH

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ABSTRACT

Mosquito-borne diseases are the largest contributor to the vector-borne diseases having significant public health concerns worldwide. *Aedes aegypti* is the principal mosquito vector for several arboviruses including dengue, chikungunya and yellow fever. In the absence of efficient vaccines or antiviral drugs, disease control and prevention entirely depends on mosquito control strategies. Release of insects carrying dominant lethal gene (RIDL) can be employed to suppress the target mosquito population. In the RIDL strategy, genetic sterility is engineered in mosquitoes using tetracycline dependent-repression of a dominant lethal/effector gene. Non-cell autonomous effectors can be used to target more sensitive tissues distant from the tissues in which they are expressed. The designed RIDL based tet-off bi-partite system contains a transactivator gene construct and an effector gene construct. Transactivator gene construct was designed by placing *Ae. aegypti* codon-optimized tetracycline repressible transactivator gene (tTA) (AJ865387.1) under the control of the *Ae. aegypti* carboxypeptidase A gene (AAEL010782) promoter. For the effector construct, sequences of *Ae. aegypti* codon-optimized insect-specific scorpion toxin gene AaHIT from *Androctonus australis* hector and secretory signal peptide from *Autographa californica* baculovirus major envelop glycoprotein (gp67) were selected from a previous study (MK795198) and placed under the control of tTA response elements (TRE) and minimal promoter sequences from *Drosophila melanogaster* hsp70 (Gene Id:48582). Our hypothesis is by combining these two constructs it would result in blood meal-inducible and midgut-specific expression of effector gene in the absence of tetracycline which will ensure the late acting paralysis of female adult mosquitoes and thereby control the target population and prevent the *A. aegypti* vector-borne diseases.

Keywords: *Aedes aegypti*, mosquito, RIDL, transgenic, bi-partite system

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ASSOCIATED NON-RESPIRATORY SYMPTOMS AMONG ASTHMATIC ADOLESCENTS IN SRI LANKA

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ABSTRACT

Asthma is a common health problem among children and associated with respiratory symptoms as well as Non-respiratory symptoms. However, there is paucity of data regarding extra-respiratory symptoms among asthmatic adolescents in developing countries. This study aimed to assess the prevalence of associated non-respiratory symptoms among adolescents with asthma. A cross-sectional study was conducted among a randomly selected group of 13- to 15-year-olds from 6 randomly selected schools in the Anuradhapura district of Sri Lanka. Children who reported to have wheezing during past 12 months were identified as current asthmatics by the self-administered validated International Study on Asthma and Allergies in Childhood (ISAAC) questionnaire. A self-administered questionnaire was used to identify Non-respiratory symptoms among asthmatics. Of 1101 participants (male 509 [46.2%], female 592 [53.8%], mean age 14.4 years and SD 1.3 years), 235 had asthma (21.3%). The prevalence of non-respiratory symptoms among asthmatics were reported; abdominal pain (19.1% in asthmatic vs 11.2% in non-asthmatics; odds ratio (OR) 1.89, 95% confidence interval (CI) 1.28-2.78; p=0.001), limb pain (13.6 vs 8.5%; OR 1.6, CI 1.0-2.6; p=0.01), photophobia (8.5% vs 4.3%; OR 2.0, CI 1.1-3.6, p=0.001), headache (20.4% vs 17.0%; OR 1.2, CI 0.8-1.8, p=0.2), lightheadedness (8.9% vs 6.7%; OR 1.3 CI 0.8-2.3, p=0.2). Asthma is associated with somatic symptoms like abdominal pain, limb pain and photophobia among adolescents. Therefore, Management strategies of asthma should be extended to assess the psychological aspects among asthmatic adolescents.

Key words: Asthma, Extra-respiratory symptoms, Non-Respiratory symptoms, Adolescents

**ASSOCIATION BETWEEN LIFESTYLE FACTORS INCLUDING PHYSICAL
ACTIVITY AND HIGH BODY FAT AMONG SCHOOLCHILDREN IN GAMPAHA
DISTRICT, SRI LANKA**

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ABSTRACT

Childhood obesity is a major public health concern worldwide. Little is known about the relationship between lifestyle factors including physical activity and obesity in schoolchildren. This study aimed to examine the relationship between school lifestyle factors and excess adiposity in Sri Lanka. We used data obtained from a school-based cross-sectional study in the Gampaha district in 2017. A total of 509 primary school children aged 5-10 years were included in the analysis. Percent body fat (%BF) was calculated using triceps and subscapular skinfold thickness. The threshold of %BF percentile established by McCarthy et al. was applied to classify students as overfat (≥ 85 percentile). Dietary and sweets intake, physical activity, sleep duration, and commuting way and time were used as lifestyle factors. Grade and school types were included as covariates. The proportion of overfat was 21.0% for boys and 27.4% for girls. The percentage of children who engaged in “at least 60 minutes of moderate- to vigorous-intensity physical activity (MVPA) daily” was 52.3% for boys and 34.7% for girls. Multivariate analysis showed that children who were engaged in “at least 60 minutes of MVPA daily” were less likely to be overfat (boys; adjusted odds ratio (aOR) 0.37, 95% confidence interval (CI) 0.16 -0.87), girls: aOR 0.41, 95%CI 0.21-0.78). Our findings suggested that at least 60 minutes of daily MVPA may help to decline excess adiposity in school children, but further study is required to identify this mechanism.

Keywords: Childhood obesity, lifestyle factors, physical activity, epidemiological study

POLYCISTRONIC CLUSTER OF SYNTHETIC SMALL RNAS CONFERRING DENGUE VIRUS RESISTANCE IN MOSQUITO VECTOR AEADES AEGYPTI: A COMPUTATIONAL STUDY

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ABSTRACT

Dengue disease is caused by the dengue virus (DENV), consisting of four serotypes (DENV 1-4) and transmitted by the mosquito vector *Ae. aegypti*. Unavailability of a tetravalent dengue vaccine urges novel vector control strategies to reduce disease transmission. RNA interference (RNAi) is a major innate response of *Ae. aegypti* against DENV resulting infections in mosquito vectors nonpathogenic. Therefore, researchers have used RNAi-based effector genes to develop DENV-resistance in mosquito vectors. However, DENV-resistant genes effective against all serotypes have not been developed to date. To fill this void, a polycistronic cluster of nine DENV-targeting synthetic small RNAs (ssRNA) was designed to process through endogenous RNAi machinery. ssRNA sequences were selected based on sequence conservation using sequence data available in NCBI to ensure effective virus suppression. ssRNA sequences were examined for off-target prediction using the BLAST tool available at VectorBase Bioinformatics Resource. No significant interaction was identified against any transcript of *Ae. aegypti*. The *Drosophila melanogaster* miR6.1 stem-loop (MI0000124) sequence was modified to target nine sites as previously described. The polycistronic cluster was placed under the *Ae. aegypti* carboxypeptidase A gene (AAEL010782) promoter to elicit a blood meal-inducible, midgut-specific expression of ssRNA in females. Thereby ensures the formation of ssRNA, soon after ingestion of viremic blood when the virus is in its most vulnerable state to reduce DENV replication. The whole gene cassette was designed to clone into a piggyBac vector containing 3xP3-DsRed as a transgenesis marker. Further experiments could make them candidates for effective control of dengue in population replacement strategies.

Keywords: Dengue, dengue virus, *Ae. aegypti*, RNA interference, synthetic small RNA

WHAT DRIVES THE SRI LANKAN YOUTH TO INSTIGATE SUBSTANCE ABUSE; A PRELIMINARY STUDY

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ABSTRACT

Drug addiction is a major social, economic, and cultural drawback in Sri Lanka. The effect of drug addiction is massive and is associated with depression, health issues, impairment of education, increasing tendency toward crime, and employment issues. Thousands of adolescents and also school children are at a high risk of inclining towards substance abuse. In this milieu, the current study aimed to describe the factors associated with the initiation of drug abuse among individuals who are enrolled in residential treatment at a selected rehabilitation center. A descriptive cross-sectional study was conducted among 50 individuals with substance use disorder who are enrolled in the residential treatment at the rehabilitation center governed by “The Mithuru Mithuro Movement”. Data were collected using interviewer-administered questionnaires and data were analyzed using descriptive statistics. Of the participants’ majority were Sinhala (100%) Buddhists (96%) with the mean age of 26±4.8 years. All most all the participants completed the senior secondary education and majority of the participants (82%) were employed. Heroin was the substance that was used by the majority (80%). Most of them used cigarettes (64%) as the first substance at the mean age of 16±3.8 years. Whereas, Alcohol (8%), Cannabis (6%) and other substances (15%) such as Tramadol, Cough syrup, Beetle with Tobacco and Diazepam were also used as the first substance. Most of them (74%) retrieved the substances with the help of a friend. The study further revealed that curiosity (84%), peer pressure (16%), and stress (8%) to be the first drives for substance use.

Key words: Substance abuse, Instigate, Drug addiction, Sri Lanka

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CONCEPTUALIZING SEXUAL INEQUALITY AT GARMENT MANUFACTURING FACTORIES IN SRI LANKA

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ABSTRACT

The modern workforce has become more diverse in terms of ethnicity, religion, gender, race, socio-economic status, exceptionalities, geographical area, and language as well as in sexual orientation. However, when compared with other dimensions of diversity, sexual orientation remains the so-called “last acceptable and remaining prejudice” in today’s organizations and societies. Thus, inequality related to sexual orientation at the working organizations, is one of the major issues in diversity management in global south. Reproducing of inequality based on sexuality has excluded Lesbian, Gay, Bisexual and Transgender (LGBT) personnel from the labour market or kept them away from the productive work. Exclusion of LGBT community is not only a social, cultural and ethical issue but also an economic development issue. Apparel industry, one of the main foreign exchange sources in Sri Lanka, is facing similar problems and challenges, which directly affect the performance of industry and its employees. Therefore, the purpose of this paper is to conceptualize organizing processes and practices that create inequality at the workplace by taking Joan Acker’s inequality regime as a Point of Departure. The paper finally suggests to empirically validate Acker’s theory, by extending sexuality as a base of inequality, and using field experiments to examine sexual inequality at work. Findings on the theoretical association between sexual orientation and inequality regime may reveal significant managerial implications for Human Resources Practitioners and insights for future research.

Keywords: Sexual Orientation, Inequality at Work, LGBT, Organizing Processes, Garment Industry

HEALTH RELATED QUALITY OF LIFE AMONG BELOW KNEE AMPUTEES IN SRI LANKA – A PRELIMINARY STUDY

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ABSTRACT

A Below knee amputation is a life changing procedure and can negatively influence the health-related quality of life of the patient. The purpose of this study was to determine the health-related quality of life of the below knee amputees in the aspects of physical functioning, social functioning, and mental health. Methods: Hundred male and female participants in the age of 20-80 years with a below knee amputation were interviewed using the SF-36 health survey questionnaire. Results: A majority of the participants was males (70%) and 41% of them were in the age category of 41-60 years. Most of the participants are married (n=69, 69%) and have a transtibial amputation (n=54, 54%). The mean values of the participants in the aspects of physical functioning, role-Physical, Bodily Pain, General Health, Vitality were 61.3000 (± 25.59); 49.50 (± 45.50); 58.00 (± 31.00); 66.05 (± 25.008); 69.95 (± 22.93) while means for Social Functioning, Role- Emotional and Mental Health has been 71.25 (± 26.85); 59.66 (± 45.26) and 66.20 (± 27.07) respectively. Participants had a mean of 49.25 (± 26.46) for the area of change of health. Conclusion: The results of this preliminary study suggest that the below knee amputees show lower scores in most of the areas related to health-related quality of life except in the social functioning.

Keywords: Quality of life, Below Knee Amputees, SF-36

**EFFECTS OF BIOMASS FUEL AND TOBACCO SMOKE EXPOSURE ON
RESPIRATORY SYMPTOMS IN ESTATE WOMEN IN DOLUWA MEDICAL
OFFICER OF HEALTH AREA, CENTRAL PROVINCE, SRI LANKA**

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ABSTRACT

Use of biomass fuel is high in developing countries, including Sri Lanka. Moreover, the exposure to tobacco smoke is high. Exposure to bio mass fuel and tobacco smoke are major contributors to respiratory symptoms. This study aimed to evaluate the effects of bio mass fuel and tobacco smoke exposure on respiratory symptoms among the estate women in Central Province, Sri Lanka. A descriptive cross sectional study was conducted. Hundred and seventy-five women were included in the study. Data were collected using an interviewer administer questionnaire and exposure assessment was done using a breath carbon monoxide monitor called PiCO+ Smokerlyzer. Women who exposed to both wood fuel smoke and tobacco smoke showed higher proportion of cough and phlegm compared to women who exposed only to wood fuel smoke ($p=0.003$ and $p=0.006$). Proportion of women with cough and phlegm were significantly higher among the women who used only wood fuel compared to women who used mixed fuel type ($p=0.01$). Similarly, the women who exposed only to wood fuel have higher breath CO concentration and COHb% compared to those who use mixed fuel type. The results suggest that exposure to both tobacco and wood fuel smoke increases the risk of respiratory symptoms among reproductive aged women. Women who use only wood fuel as the kitchen fuel showed significantly higher CO concentration and COHb% compared to liquid petroleum gas users and mixed fuel users.

Keywords: Biomass fuel, Respiratory symptoms

ANTIBACTERIAL ACTIVITY OF CENTELLA ASIATICA LEAVES ACCORDING TO THEIR MATURATION AND THE SYNERGISTIC ACTIVITY OF CENTELLA ASIATICA ANTIBIOTIC DISCS TOWARDS STAPHYLOCOCCUS AUREUS

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ABSTRACT

Centella asiatica (*C. asiatica*) is a medicinal herb which had been used by many countries around Asia, Africa and Australia. This plant can be used as a green leafy vegetable, medicine or as a cosmetic. This study will focus on the antibacterial activity of *C. asiatica* leaves according to their maturation stage; as pre mature, post mature and mature. *C. asiatica* extract was obtained by ethanol extraction method by mixing 15g of *C. asiatica* leaf powder with 25ml of 95% ethanol. From each extract antibiotic discs were prepared by using No.1 Whatman's filter paper. According to the obtained results, mature *C. asiatica* leaves had the highest antibacterial activity towards *Staphylococcus aureus* with a 12.3mm zone of inhibition in nutrient agar medium. The least antibacterial activity was obtained in the pre mature *C. asiatica* leaves, which had given 7.2mm zone of inhibition and post mature leaves had shown a moderate antibacterial activity of 10.3mm on Nutrient agar. By using the antibiotic discs, which were created by, using mature *C. asiatica* extract; synergistic activity with Ciprofloxacin, Gentamycin and Vancomycin was observed. Both Ciprofloxacin and Gentamycin antibiotic discs activity were reduced from 32mm to 26mm and 34mm to 30mm respectively: when they are combined with the *C. asiatica* extract where Vancomycin had given increased antibacterial activity from 23mm to 24mm when it was synergised with *C. asiatica* leaf extract. This study will help to understand about the antibacterial activity of *C. asiatica* leaves' extracts towards *Staphylococcus aureus*. Since the antibiotic resistance is a major problem in the presence this study had also focussed on the antibiotic synergism by synergising the created *C. asiatica* antibiotic discs with existing antibiotics such as Vancomycin, Gentamycin and Ciprofloxacin.

Key words: Antibiotic Synergism, Centella asiatica, Ethanol extraction

**WHOLE GENOME SEQUENCING OF SETARIA DIGITATA REVEALS NEW
INSIGHTS INTO DISEASE ASSOCIATION OF WOLBACHIA BACTERIAL
ENDOSYMBIONT**

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ABSTRACT

Setaria digitata is a filarial nematode that belongs to the family Onchocercidae and subfamily Setariinae, and it causes cerebrospinal nematodiasis in non-permissive hosts resulting in economic loss in livestock farmers. A little is known about the biological/biochemical processes taking place in this nematode. In this study, we sequenced S. digitata isolated from Bos taurus and the genome was annotated to characterize Wolbachia like sequences, if any in the genome, as S. digitata is reported to be Wolbachia free nematode. In analyses of sequencing results, 120000 unique 31-mer frequencies were observed in 120 times in the S. digitata genome with an error rate of 0.15%. The GC content and Q30 were found to be 31.77 and 97.32, respectively, and a draft genome of 77.78 Mbp was resulted from the genomic assembly. Further, the annotation of the S. digitata genome predicted 15,987 proteins and Blast Kola functional categories, and the homology search carried out with Brugia malayi genome, an approximate 5000 Blast hits were resulted with a cutoff e-value of 1e-6. Furthermore, from the genome sequencing analyses of S. digitata, ninety-five KEGG metabolic pathways were identified and mapped, and MLST genes were also identified in Setaria nuclear genome. Phylogenetic analyses based on CoxA sequences displayed the S. digitata is more similar to Wolbachia free Onchocerca volvulus. The genomic analysis and the presence of Wolbachia like genes in the nuclear genome emphatically proved that ancestral S. digitata had been associated with Wolbachia, and the endosymbiont deprivation and horizontal gene transfer may have happened thereafter.

Keywords: Setaria digitata, Nematodiasis, Wolbachia, KEGG

DEVELOPMENT AND VALIDATION OF A RAPID TEST METHOD FOR DETECTION OF PORK MEAT WITH PROCESSED MEAT PRODUCTS

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ABSTRACT

Meat is one of the major dietary components to human and it mainly provides nutrients such as proteins, amino acids, unsaturated lipids, microelements, vitamins and minerals. Pork adulteration in beef is mainly found in Japan, Korea and china and so on because beef meat is expensive and pork is cheap. This fictitious case not only harms for the allergic consumers but also religious behaviors (Muslims and Jews). Therefore detection of pork adulteration in processed meat products is important. DNA based methods and protein based methods are used to detect the pork adulteration but in this project, DNA based PCR method was used because DNA structure is more stable and highly rationed allowing identification and discrimination of species not only in raw meat but also in processed meat samples. Repeatability was performed ten times for the same Lingus sample to detect the proximity of the agreement between the results of successive measurements and it was 100% accurate. Secondly, recovery was performed for the concentrations of 0%, 0.1%, 0.5%, 1%, 5% and 10% for pork sausage and beef sausage mixtures and PCR was followed using bovine and porcine species specific oligonucleotide primers. DNA was extracted using DNeasy Mericon Food Kit, Qiagen (Germany) and limit of detection 5% pork concentration. PCR products of extracted DNA were subjected to the simplex and duplex polymerase chain reaction (PCR) using porcine species specific oligonucleotide primers and bovine species specific oligonucleotide primers respectively. Finally, detect the pork adulteration in processed meat products available in local market targeting the 289bp porcine and 251bp bovine mitochondrial DNA. Therefore, PCR technique is a simple, fast, reliable, sensitive and cost effective method to check porcine and bovine DNA in highly processed meat products.

Keywords: bovine, porcine, recovery.

**A QUALITATIVE STUDY ON FACTORS ASSOCIATED WITH COMPLIANCE IN
THE MANAGEMENT OF DIABETES MELLITUS AMONG PATIENTS
ATTENDING TEACHING HOSPITAL, JAFFNA**

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ABSTRACT

Background: Diabetes Mellitus is a group of metabolic diseases in which there are high blood sugar levels over a prolonged period. More than 80% of diabetes deaths occur in low- and middle-income countries. It is clear that an individual's failure to use prescribed medications properly in terms of adherence and/or persistence also contributes to adverse clinical outcomes. Objectives: This study targeted to identify and describe the factors associated with compliance in the management among diabetes mellitus patients attending medical clinic in teaching hospital Jaffna. Methodology: This was a descriptive qualitative study. Study setting is the Teaching hospital Jaffna. The study population was diabetic patients attending medical clinics in Teaching hospital Jaffna, their immediate family members, consultant physicians and medical officers attached to medical clinics in TH/J. The sample consisted of 40 patients (4 Focus Group Discussions (FGD), 20 immediate family members (2 FGDs). Consultant physicians and Medical Officers were also been included as Key Informants. Results: Majority of the patients who belonged to controlled DM take their medications almost regularly and know about the complications as per the interview with patients, carers and experts. The cross sectional comparison of balance drugs on the day also reflected the same while patients who belonged to uncontrolled DM were found neglecting their medications and miss the medications frequently even though they know about the complications. Irrespective of their status of the DM, majority of the patients did not try to change their lifestyles with regard to alcohol consumption, smoking or exercise. However, female patients revealed that they changed their dietary habits by cutting down certain food items like sweets, white rice and wheat flour but did not cut down size of the plate. The experts too revealed that the life style modifications is a major challenge in controlling DM. Considering the health education, majority mentioned that they did not receive health education and the experts too revealed that the health education is given only with consultations. The expectation from the patients and carers was to improve health education on life style modifications and to impose restrictions on alcohol and tobacco sale. Conclusions: Compliance and interest in improving Diabetes Mellitus through life style modification seemed poor compared to through compliance to medications Recommendations: Systematically structured health promotion mainly focussing life style modification to be included in the management of Diabetes Mellitus.

A STUDY ON FOOD HYGIENIC MEASURES IN EATING HOUSES IN COLOMBO

06

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ABSTRACT

Background: Food safety is a current concern as a public health issue all over the world as food borne disorders is increasing. Food safety is governed by Food Act No 26 of 1980 in Sri Lanka. The Act controls manufacture, importation, transport, sale, distribution, advertisement and labeling of food. Objectives: This study was carried out to describe the food hygienic measures in eating houses in Colombo 06 during the period of June 2018-2019. Methodology: This was a descriptive cross sectional study. An eating house was operationally defined as 'A place people pay and eat where cooked food is served'. An operational checklist which was developed by the PI by literature review and expert consultation was used as the study instrument to collect data. Among the eating houses, 102 which consented to take part were included in the study. Results: Food hygiene was described under 6 domains. Environmental sanitation was found satisfactory in 51.8% and pipe borne water supply was available in 100% of eating-houses and hand-washing facilities with soap was available in 82.7% of eating houses. Personal hygiene of food handlers were found satisfactory in nearly one fourth of the eating houses while unhygienic habits of food handlers were prevalent in 73.6% of eating houses. Nearly half of the eating houses found displaying the cooked food items in hygienic manner. Conclusions: Personal hygiene of food handlers and their habits found unsatisfactory in vast majority of the eating houses while hand washing facilities, display of cooked food were found comparatively satisfactory. Recommendations: Training to be targeted to improve the personal hygiene and the hygienic habits of food handlers and environmental sanitation

Key words: food safety, food hygiene

**ASSOCIATED FACTORS FOR ROAD TRAFFIC INJURIES - A STUDY AMONG
PATIENTS TRANSFERRED FROM OTHER HOSPITALS TO NATIONAL
HOSPITAL OF SRI LANKA**

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ABSTRACT

Background: Road Traffic Accidents kill 1.2 million people every year and injuries up to 50 million more. Road traffic injuries causing deaths or disabilities have turned out to be a major public health problem at global, regional and national level despite the preventive measures implemented by many countries. The phenomenon is more prominent in low and middle-income countries where the cost for traffic injuries is 1 to 2 percent of gross national product. Objectives: This study was carried out to describe the pattern and severity of injuries and associated factors of the road traffic injury patients transferred to the National Hospital Sri Lanka Methodology: This was a descriptive cross sectional study carried out during the period of March 2018-2019. An Interviewer administered questionnaire which was developed by the PI was used as the study instrument to collect data. There were 424 participants included in the study. Results: Majority of the participants were males (89.6%) and belonged to age group of 18-40 years (66.8%) and Sinhalese (76.4%). Majority were found as motorcyclists (riders/pillion riders (61.3%). Very minority of RTA victims received first aid (6.1%) at the site of the accident and majority was transferred to the hospitals by three wheelers. Little more than half of the accidents took place between 6pm and 6am. Great majority of the injuries were grievous and main types were crushing injuries, traumatic amputations and internal organs. Among the motorcyclists, great majority (91.2%) had worn helmets but among the passengers, great majority (93.4%) did not wear seatbelts. Conclusions: Motorcyclists (riders & pillion riders) were the major group of victims of severe injuries. Recommendations: Education to be mainly targeted the motorcyclists and regulations on Highway Code to be strictly implemented in order to reduce the morbidity and mortality due to Road Traffic Injuries

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