CINEC
INTERNATIONAL RESEARCH SYMPOSIUM
CIRS 2022

3rd CINEC INTERNATIONAL RESEARCH SYMPOSIUM

Transforming Innovation for Sustainable Development

"Nemo Resideo"
-No one is left behind-

KNOWLEDGE | RESEARCH | INNOVATION | COLLABORATION

CINEC
CAMPUS
Beyond A Graduate

10th November 2022
Klaus E.Orlendorff Auditorium
CINEC Campus, Malabe
Sri Lanka

ABSTRACT BOOK

Faculty of Management and Social Sciences
CINEC Campus
Malabe

November 2022

Abstract Book of the 3rd CINEC International Research Symposium 2022

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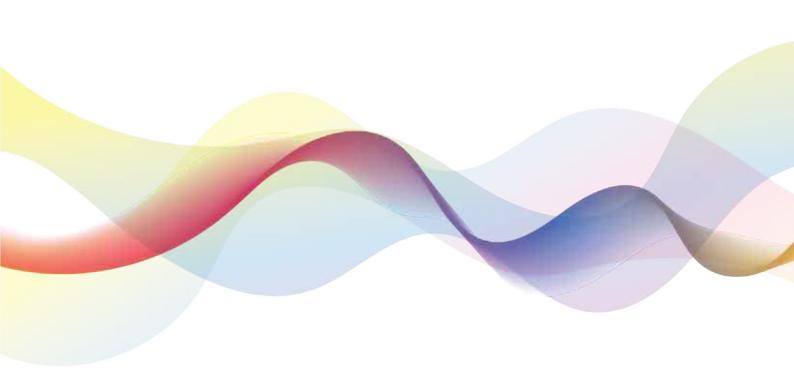
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ABSTRACT BOOK

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Mr.Sumithra Kumara

* The responsibility of the content of the published research papers solely lies with the authors.

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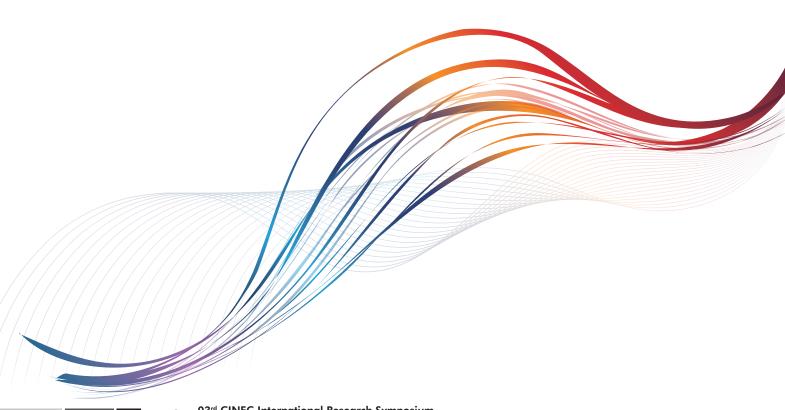CINEC Campus,Malabe

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PREFACE

PREFACE

The Faculty of Management and Social Sciences, CINEC Campus, Malabe, Sri Lanka, meticulously organized and hosted the 03rd CINEC International Research Symposium (CIRS) on 10th November 2022 at the CINEC Klaus E Orlendorff main auditorium. CIRS was the first peer to peer Annual International Research Symposium held under the core theme of "Transforming Innovation for Sustainable Development," with the main purpose of drawing out innovative ideas to deliver the most necessary policy initiatives and strategy implementation to foster sustainable development in Sri Lanka. CIRS 2022 was successfully conducted in close collaboration with 7 foreign universities and 10 state universities incorporating over 200 national and international research abstracts under 06 sub technical tracks, resembling the main theme under the tagline "Nemo Resideo" –"No one is left behind".

Track 1 Faculty of Management and Social Sciences	"Resilience Building and Entrepreneur Innovation for Sustainable Development: A story yet to explore
Track 2 Faculty of Engineering and Technology	"Innovations for Sustainable Development"
Track 3 Faculty of Health Sciences	"Technology push with society change; reframing health society relationship"
Track 4 Faculty of Maritime Sciences	"Sustainable development of Shipping for world economy, promoting safer ships and cleaner oceans"
Track 5 Faculty of Marine Engineering	"Sailing through dynamic challengers with knowledge and discipline towards excellence and superiority"
Track 6 Faculty of Humanities and Education	"Employing current trends in education for sustainable development: The role of humanities and education"

We sincerely thank all academic and non-academic staff and CIRS faculty representatives of CINEC, Faculty of Management and Social Sciences, Faculty of Engineering and Technology, Department of Information Technology, Faculty of Health Sciences, Faculty of Maritime Sciences, Faculty of Marine Engineering, Faculty of Humanities and Education for their significant contribution towards the success of CIRS 2022. We are also grateful to all the chairpersons, panel members, national and international presenters and the enthusiastic participants for their numerous thought-provoking contributions for the two simultaneous sessions at CIRS held on 10th November 2022.

We strived to ensure that the symposium add unique value to the existing body of knowledge and intended especially for university students and researchers throughout the world.

Organizing Committee
03rd CINEC International Research Symposium

Message from the President
Capt. Ajith Peiris
3rd CINEC International Research Symposium,2022(CIRS-2022)
CINEC Campus, Malabe

I am writing with great pride to congratulate the national and international scholars who presented at the 03rd CINEC International Research Symposium, 2022, hosted by the Faculty of Management and Social Sciences.

The CINEC International Research Symposium welcomes all stakeholders who wish to gain and share knowledge and experience in this national debate. The symposium focuses on topics discussed by relevant experts and revolves around research-based discussions. I am confident that our scholars will benefit greatly from this initiative, and that they will enjoy presenting their research findings at this illustrious forum attended by international and industry experts in various disciplines.

It is noteworthy that the third consecutive year of this symposium has gained national recognition and draws the attention of both the local and international fraternity of various fields, providing enormous opportunities for Sri Lankan stakeholders.

The theme of "Transforming Innovation for Sustainable Development" complements the symposium's core focus, which is an appropriate topic to support the country's growth.

I am certain that all participants will benefit greatly from the acquisition and advancement of knowledge, networking with a diverse range of stakeholders, and contributing to the development of appropriate national policies and strategies to achieve sustainable development on our island.

Finally, I'd like to extend my gratitude to the organizers, especially the Faculty of Management and Social Sciences, for hosting the first peer-to-peer Annual International Research Symposium in CINEC history.

Capt. Ajith Peiris
President
CINEC Campus

Message from the Consultant - Academic Affairs and Research
Prof. Veranja Karunaratne
3rd CINEC International Research Symposium, 2022(CIRS-2022)
CINEC Campus, Malabe

Three years ago, CINEC Campus launched the CINEC Research Symposium with the goal of instilling a research culture in CINEC graduates and undergraduates. Today, this excellent start has evolved into a highly respected and recognized contribution that adds value to the country's development.

The Faculty of Management & Social Sciences will be able to convince the society of the valuable academic contribution of this endeavor through the consecutively organized 3rd CINEC International Research Symposium.

Hence, I trust that the opportunities provided by this forum will significantly contribute to the development of the industry by improving scientific research-based knowledge with analytical thinking.

Personally, I believe that the publications produced by this symposium will certainly provide valuable insights to decision makers, marketers, administrators, and other industry stakeholders.

Finally, I must congratulate the organizing committee of CIRS 2022 on the successful completion of this event, and I extend my best wishes to all national and international presenters on their outstanding achievement.

Prof. Veranja Karunaratne
The Consultant - Academic Affairs and Research
CINEC Campus

Message from the Symposium Chair
Prof. (Dr.) Lalith Edirisinghe
3rd CINEC International Research Symposium,2022(CIRS-2022)
CINEC Campus, Malabe

It is a great pleasure and a privilege to be the Chair of 03rd CINEC International Research Symposium (CIRS) – 2022). International Research Symposium is held on 10th November 2022 at Kluse E Oldendorff Auditorium, CINEC Campus, Malabe.

The major objective of the International Symposium is to provide a Knowledge-Based Dialogue to deliver the most required policy measures and strategic management applications to strengthen sustainable development in Sri Lanka, under the main theme on "Transforming Innovation for Sustainable Development". The theme carries the tag line in Latin "Nemo resideo", in English for "No one left behind." It was a critical part of Roman Legion morale. Leave no one behind (LNOB) is the central, transformative promise of the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs).

Students of CINEC campus were invited to submit abstracts of their research and the notice was conveyed through the deans of respective faculties. Deans of each faculty proposed individual tracks for the plenary sessions well thought under the main theme given above. Accordingly, Faculty of Management and Social Sciences introduced a track namely, "Resilience Building and Entrepreneur Innovation for Sustainable Development: A story yet to explore" while Faculty of Engineering and Technology proposed "Innovations for Sustainable Development" as their track. Third track, "Technology push with society change; reframing health society relationship" was created by Faculty of Health Sciences, the youngest faculty of CINEC Campus. Faculty of maritime sciences and Faculty of Marine Engineering proposed two tracks namely, "Sustainable development of Shipping for world economy, promoting safer ships and cleaner oceans" and "Sailing through dynamic challengers with knowledge and discipline towards excellence and superiority "respectively. Faculty of Humanities and Education introduced the sixth track "Employing current trends in education for sustainable development: The role of humanities and education." As the Chair of the CIRS - 2022, I am delighted to realize that close to two hundred abstracts have been submitted by the six faculties. I personally take this as a great achievement. I also went through most of these abstracts in addition to the strict peer review mechanism and noted majority of them are high quality academic papers. Our academic staff has taken this as a serious exercise in the education process of undergraduates.

When the task of Chairmanship of the CIRS 2022 was assigned to me by the Symposium Committee headed by Professor Veranja Karunaratne, Consultant - Academic affairs, with the blessing of our visionary leader Capt. Ajith Peiris, Chairman and Managing Director of CINEC, I did a gap analysis. Thereafter I discussed with our senior staff members of the faculty who conducted a SWOT analysis prior to plan the event. The chief organizers that include the co-chair Mr. Sampath Siriwardena, Head -Department of Logistics and Transport, Mrs. Lakshmi Ranwala, Head- Department of Management and Business Studies - Mrs. Viraji Waidyasekara, Secretary - Ms. Chathurika De Silva, and a representative from each faculty namely, Dr. Kalpani Madushika Ratnayake, Ms. Radha Madurangi Wimalawansa, Ms. Udayanga Warnakula Edirisooriya, Mr. Sumithra Nandana Kumara, Ms. Keshani Abenarayana, Mr. Dhishan Dhammearatchi, and Mr. Duminda Kumara agreed on three primary goals.

Firstly, we want to enhance the research culture throughout six faculties because in the gap analysis it was noted that research component was not explicit in the curriculum of certain programs. While this is a norm due to industry standards of those disciplines, we believe that encouraging all the students including those who have with less exposure to academic research is a value addition. Therefore, special emphasis was given to encourage abstracts from all disciplines. Secondly, we wanted to expand the previous "local mind set" broadening the horizon to global and get the international participation. We are happy that CIRS - 2022, has secured seven international partners and surely this will be benefited and further improve in the next symposium. Thirdly, the organizers wished to automate the entire process. One reason being to reduce the burden on staff members and make the process effective and efficient with extremely low cost. On the other hand, it is to provide first-hand experience to all staff members, reviewers, and coordinators to get familiar with fully automated version of conference management system. I take this opportunity to thank the owners of "Easy Chair" freeware for giving us a fantastic E-platform free of cost.

Many workshops about academic writing have been conducted to improve the knowledge, skills, and competence of students since the announcement of call for Research Papers. Also training sessions have been arranged prior to symposium, about preparing and presenting research papers effectively. Finally, we established CIRS-2022 as the most convincing academic event of the year with the close intervention of top management.

We believe CIRS 2022 is not a beginning or the end. It is the means of academic prosperity of CINEC's wisdom in higher education that paves the way beyond its 32 years of academic excellence and existence to be the best in producing good citizens.

Professor (Dr.) Lalith Edirisinghe
Expert Consultant to the United Nations Secretariate (UNESCAP)
Member of Wellness Tourism Advisory Group of the European Union (EU)
Chartered Marketer, Chartered Logistician

Message from the Dean -Faculty of Engineering and Technology
Dr. Janaka Liyanagama
3rd CINEC International Research Symposium,2022(CIRS-2022)
CINEC Campus, Malabe

I am delighted to forward this message on the occasion 03rd CINEC International Research Symposium (CIRS) – 2022 under the core theme of "Transformation of innovation for sustainable development- No one is left Behind". Faculty of Engineering and Technology has its dedicated theme for Engineering and Technology stated as Innovation for Sustainable Development.

This event has significantly evolved in to an esteemed and widely celebrated affair in line with the United Nations, 17 Sustainable Development Goals. Thus, the CINEC Campus, has not only forged ahead in providing formal quality education to the industry but also provides intellectual dialogue on array of holistic approach of diversified research disciplines based on absolute scientific research. It has continuously been evident that the 03rd CINEC International Research Symposium (CIRS)-2022 will offer direct and indirect contribution to the Engineering & IT industry through interaction and application-oriented research studies.

The International Symposium and the panel discussions open the doors for all stakeholders who intend to either share their knowledge or acquire knowledge by being able to be part of this national discourse.

I am extremely happy to know that this annual event has acquired national status and continues to gain recognition from both local and international fraternity of the engineering and information technology sector which in turn will provide enormous opportunities to the Sri Lankan stakeholders. I hope that all the participants certainly be able to gain substantial adequate knowledge and that they will thereupon be able contribute towards creating befitting national policies and strategies to promote Engineering and IT industry in Sri Lanka.

I congratulate the presenters, organizers and all academic & non-academic staff, wish them for a successful event.

Dr. Janaka Liyanagama
Dean
Faculty of Engineering and Technology
CINEC Campus

Message from the Dean -Faculty of Marine Engineering
Mr. Arjuna Ranasinghe
3ʳᵈ CINEC International Research Symposium,2022(CIRS-2022)
CINEC Campus, Malabe

It is great pleasure and honor to write this message and congratulate to the participated students, staff and other participants at the prestigious occasion of the Student International Symposium of the CINEC Campus in 2022. Annual student research Symposium is to typically allow experts in each field to meet, discuss publications in question and examine issues and trends associated with the topics. And, to encourage develop dissemination of the research knowledge of the students. The findings from a Symposium can be used to help others within the field of research and can endure testing if applicable. However, Research Methodology is not that much popular among the Maritime Education and training in Seafarers even though most of Marine new developments were happened as a result of the various research.

The technological revolution has created dynamic challengers of new trends across various sectors, including Marine Engineering. The new changes in the Marine industry are focused on resolving problems such as environment pollution and fuel crisis. The Ships have been equipped with latest technologies with necessary tools to address ship emissions and fleet management. There are four latest developments in marine Engineering that are driving innovation in the marine industry.

- Liquified Naturel Gas (LNG) – to overcome the environment pollution and the hike in fuel prices, alternative fuels such as LNG is used.
- 3D Printing Technology – The implementation of 3D printing technology has enabled Ship manufactures to enhance their part production process.
- Robotics – To enhance productivity and efficiency.
- Incorporation of turbines and electrical motors - The incorporation of turbines and electrical motors in the place of engines will enable manufactures to improve the weight to volume ratio.

Considering all the factors above, it is likely to reach new capabilities within the next few years. Knowledge and the discipline of the marine industry are the key factors to be considered and developed. In fact, training a knowledgeable and well discipline Seafarer to the industry is challengeable. Development of training institutions with modern technology and quality education systems drive towards excellence and superiority of the Marine personal. No

doubt, CINEC Campus initiates new projects with an aim to enhance knowledge and discipline of the seafarer to comply with new development in the marine industry. Moreover "IGF training" for LNG powered ships too is scheduled to be conducted for needy seafarers under one roof.

Finally, I take this opportunity to express my sincere gratitude to CINEC Senior Management, Dean of the Faculty of Management and Social Sciences, his team and organizing committee for their contribution and commitment to make this event in International Standards.

Mr.Arjuna Ranasinghe
Dean
Faculty of Marine Engineering
CINEC Campus

**Message from the Dean - Faculty of Maritime Sciences
Capt. Krishan Perera
3rd CINEC International Research Symposium,2022(CIRS-2022)
CINEC Campus, Malabe**

It is a great pleasure to issue this message as the Dean of Faculty of Maritime Sciences on the occasion of 3rd Annual CINEC International Research Symposium (CIRS) 2022 on "The Role of Innovation on Sustainable Development." This is a major event in the CINEC's academic calendar giving opportunity to students to present their research papers and develop research culture in CINEC and also in the faculty. The 2022 symposium consists of research abstracts presented by 04 students of the Maritime faculties. The quality of the abstracts has been maintained by reviewing by a panel of expert editorial board.

I would like to convey my sincere gratitude to the academic staff of the faculty for providing necessary guidance and advice to students during their presentation preparation. I would also like to extend my gratitude to Mrs.Keshani Abeynarayana who represented the faculty in the organizing committee of Research Symposium. This year's symposium definitely will encourage students to submit more research papers for years to come. I wish the 3rd Annual Research Symposium 2022 would be a great success.

Capt.Krishan Perera
Dean
Faculty of Maritime Sciences
CINEC Campus

Message from the Dean - Faculty of Health Sciences
Senior Prof. Menik Hettihewa
3rd CINEC International Research Symposium,2022(CIRS-2022)
CINEC Campus, Malabe

As the Dean of the hosting Faculty in the CINEC campus, I am greatly esteemed to issue this message to the symposium proceedings considering the participated students, staff, and all other symposium participants at the prestigious occasion of the student International research symposium in 2022. This event has become inevitably is an important occurrence for the Faculty of Health Science in CINEC Campus to participate during this inspiring time.

As the Dean of the Faculty, I strongly believe that convincing of students for dissemination of the research knowledge is part of our academic duties. Therefore, annual student research symposium of the CINEC Campus was specially organized with the theme of, Technology push with society change; reframing health society relationship for this special forum in year 2022.

World Bank with all university academics had already initiated this concept to make to practice and it has enabled to provide staff, undergraduate and postgraduate students of all faculties to excel and focus on the research planning skills to narrow down for society burning issues. The application, business and entrepreneur and marketing skills in the relevant discipline.

This year CINEC Student research symposium had become uplifted to international standards, and it has become the only event to disseminate the research outcome of all the final year projects to the public for its use in product identification, property protection or commercialization. Experiences which will be gained by all the students and staff in this exposure, will be immense helpful for establishing partnerships with relevant industry and revitalize their research and application skills for challenging future.

Quality of the research abstracts were maintained through standard reviewing protocols by the experts in the related fields in health. As the Dean of the Faculty of Health Sciences, I am exultant to see the students and staff enthusiasm to prepare and present their research work by learning all research methods, data analytical methods ethical applications while they are doing their academic program even before they start their final year projects.

I would like to make my special tributes to the keynote speaker, for accepting our invitation to grace this occasion. I would like to express my sincere gratitude to the all sponsors who had contributed to this event on our invitation. Organization of a research symposium in this caliber in this challenging era, is not an easy task. Therefore, I wish to thank for all the members of the organization committee for their efforts to make this even in international standards.

Senior Prof. Menik Hettihewa
Dean
Faculty of Health Sciences
CINEC Campus

Message from the Associate Dean - Faculty of Humanities & Education
Mr. Lasantha Basnayake
3rd CINEC International Research Symposium,2022(CIRS-2022)
CINEC Campus, Malabe

Sustainable development is the advancement that aims at the needs of present-day generation with no compromising the capacity and potential of future generations to achieve their own requirements. Education for sustainable development permits everyone in society to develop the knowledge, skills, attitudes as well as values that are vital to shape an ecological future. But merely increasing basic literacy does not support to establish a sustainable civilization. Institutional reforms, curriculum reforms and development of locale specific resource material incorporating Education for sustainable development should be the priorities. Unsettling global trends reveal how human activities linger threatening our abilities and capabilities in meeting current human needs without compromising the ability of future generations to meet their requirements. Sustainability will become more inaccessible without a dramatic change in our current mindset, attitudes, and behavior. As the major focuses of teaching, research, and learning, institutions of higher education are significantly leveraging the points that replicate and inform social mindsets. Unfortunately, the current educational system does not seem to cater to the requirements of educating the youth in a manner that emphasizes an environmentally ignorant and insensitive mindset.

Traditional logic and compartmentalization remain to be manifesting in most higher education institutions. A fundamental structural problem of the current educational system is the tendency to treat environmental education. Teaching and learning predominantly takes place in the classroom rather than being balanced by experiential and teaching-learning opportunities. Institutions of higher education bear a profound moral responsibility to increase society's ability to create a just and sustainable future. What is most important is how the up-to-date leanings of humanities and education can contribute to sustainability or how the humanities are sustainable.

Mr. Lasantha Basnayake
Associate Dean
Faculty of Humanities and Education
CINEC Campus

**Message from the Dean - Faculty of Management & Social Sciences
Prof. (Dr.)Lalith Edirisinghe
3rd CINEC International Research Symposium,2022(CIRS-2022)
CINEC Campus, Malabe**

In line with the main theme of CINEC International Symposium namely, "Transforming Innovation for Sustainable Development" the Faculty Board of the Faculty of Management and Social Sciences selected the sub theme, "Resilience Building and Entrepreneur Innovation for Sustainable Development: A story yet to explore."

This symposium is meant for students and the academic staff has made a serious effort to inculcate the research culture throughout the student base of the Faculty of Management and Social Sciences. I am incredibly happy and proud that it has been a roaring success. Students have responded very enthusiastically, and the number of abstracts received over two hundreds. The staff members arranged various training and coaching sessions to help students to develop a research idea and transform it to the level of submitting an abstract. Obviously, it did not happen overnight but it took a considerable time with patience.

Therefore, I consider the progress has been highly encouraging. It is not only the students who have been benefitted from the platform of CIRS - 2022, but also the academic staff. Our young staff members got immense opportunities during the process to improve their academic writership and well as leadership.

I take this opportunity to thank Capt. Ajith Peiris, our visionary leader and the President of CINEC, the senior management team who has been always attentive in preparing all nitty-gritties, our Heads of Departments, Assistant heads of Departments, lecturers for taking this valuable concept forward successfully. I will be failing in my duty as the dean if I do not mention the tremendous support by the non-academic staff of the faculty as well as in other departments during the entire process.

I wish all the best to faculty organizers, presenters, and panellists to perform a successful Symposium and reap its multiple benefits.

Professor (Dr.) Lalith Edirisinghe
Dean, Faculty of Management and Social Sciences
CINEC Campus
Head- Technology Transfer (The World Bank)

04

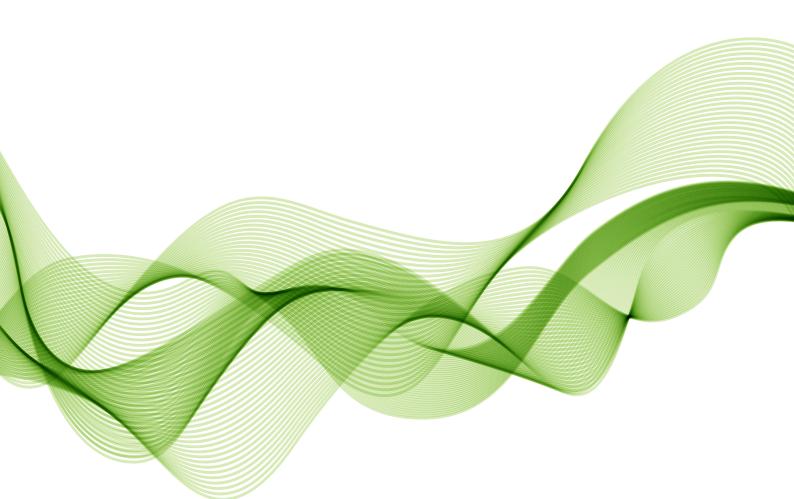# KEYNOTE PLENARY SPEAKERS AND TECHNICAL SESSIONS

THE KEYNOTE SPEAKER
Senior Professor Sampath Amaratunge

Senior Professor Sampath Amaratunge, the visionary and builder of organizations, astute university administrator, academic par-excellence, renowned business consultant and humanist has been appointed as the Chairman of the University Grants Commission by His Excellency the President, of Sri Lanka, with effect from 03rd January 2020.

Professor Amaratunge, BA (Hons.) in Economics from the University of Sri Jayewardenepura, MA in Economics from the University of Colombo, MSc. in Economics of Rural Development from Saga National University and PhD from Kagoshima National University in Japan, counts nearly 30 years' service in the University of Sri Jayewardenepura. An authority in Rural Economic Development, Professor Amaratunge has won several awards including the prestigious Research Excellence Award (2002) of the Kyushu Society of Rural Economics, Japan. He has over 75 refereed publications to his credit, both locally and internationally. As the twice appointed Vice-Chancellor of the University of Sri Jayewardenepura, Professor Amaratunge has contributed greatly to uplift the standards of the University of Sri Jayewardenepura. He considered research to be the driving force of the Nation. Thereby he took measures to upgrade the Research Committee to a Research Council which grew to accommodate 25 research centres. Professor Amaratunge's first term of office is also significant owing to the path-breaking research initiatives that were introduced. The research efforts initiated through the newly formed research council with a fund base of over Rs.400 Million were directed at nationally and internationally relevant projects. The period also witnessed large strides of development in the spheres of quality enhancement, the introduction of new technology and strategic relations.

During his tenure as the Vice-Chancellor, he was appointed as the Chairman of the Committee of Vice-Chancellors and Directors for the year 2019. He was also elected as a member of the Association of Commonwealth Universities, United Kingdom as a representative of the countries under the Constituency II.

His contribution and achievements have been recognized both locally and internationally.

Professor Amaratunge is a pragmatic intellectual of many parts. He served with distinction as Chairman, Federation of University Teachers Associations (FUTA) of Sri Lanka (2009 - 2012), a period studded with noteworthy achievements such as establishing sister unions; a research grant scheme for academics and a facility scheme for entry at grade one for their children. Professor Amaratunge had the honour of being the youngest appointed member of the University Grants Commission (2010) and held key positions in several state commissions of importance. In addition, not confining his services to academia, he sits on Boards of Management of several prominent corporates as an independent director.

Professor Amaratunge has invested in many ambitious projects during his first term in office as Vice-Chancellor, and has also been fortunate enough to reap the benefits of these. During the current term in office as the Chairman, University Grants Commission, he wishes to extend his efforts towards the development of the entirety of the Higher Education System in Sri Lanka.

Senior Professor Sampath Amaratunge
Chairman
University Grants Commission
Sri Lanka.

MAIN SESSION

Panel Discussion
"Transforming Innovation for Sustainable Development"

Prof. Veranja Karunaratne
Consultant - Academic Affairs and Research, CINEC Campus

Admiral Thisara Samarasinghe
Senior Consultant
CINEC Campus

Capt. Peshala Medagama
Vice President
CINEC Campus

Snr. Prof. Menik Hettihewa
Dean-Faculty of Health Sciences
CINEC Campus

Dr. Janaka Liyanagama
Dean-Faculty of Engineering and Technology
CINEC Campus

Mr. Lasantha Basnayake
Associate Dean - Faculty of Humanities and Education
CINEC Campus

Prof. (Dr.) Lalith Edirisinghe
Moderator

PLENARY SPEAKERS

Senior Prof. Menik Hettihewa, Dean
Faculty of Health Sciences
CINEC Campus

Prof. Sugandhika Suresh
Faculty of Medical Sciences
University of Sri Jayewardenepura

Dr. Thushari Silva
Head /Senior Lecturer
Department of Computational Mathematics
Faculty of Information Technology
University of Moratuwa

Mr. Keerthi Kodithuwakku
Co-founder/CEO-
Jendo Innovations
Co-founder/CEO -
Effective Solutions

FACULTY OF MANAGEMENT & SOCIAL SCIENCES

"Resilience Building and Entrepreneur Innovation for Sustainable Development: A Story yet to Explore"

TECHNICAL SESSION -01	TECHNICAL SESSION -02

Ms.Lakshmi Ranwala
Session Chair
Head of the Department
Faculty of Management and
Social Sciences
Senior Lecturer - CINEC Campus

Ms.Viraji Waidyasekara
Session Chair
Head of the Department
Faculty of Management and
Social Sciences
Senior Lecturer - CINEC Campus

Mr.Nuwan Jayarathna
Panel Member
Assistant Head of the Department
Faculty of Management and
Social Sciences
Senior Lecturer - CINEC Campus

Ms. Anushka Gunawardena
Panel Member
Assistant Head of the Department
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FACULTY OF ENGINEERING & TECHNOLOGY

"Innovations for Sustainable Development"

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DEPARTMENT OF INFORMATION TECHNOLOGY

"Leveraging Information Technology towards a Better Sustainable Development"

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TECHNICAL SESSION -02

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FACULTY OF MARINE ENGINEERING
FACULTY OF MARITIME SCIENCES

"Sailing through Dynamic Challenges with Knowledge and Discipline towards Excellence and Superiority"

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FACULTY OF HUMANITIES AND EDUCATION

"Employing Current Trends in Education for Sustainable Development: The Role of Humanities and Education"

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FACULTY OF HUMANITIES AND EDUCATION

"Employing Current Trends in Education for Sustainable Development: The Role of Humanities and Education"

TECHNICAL SESSION -03

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FACULTY OF MANAGEMENT & SOCIAL SCIENCES

The Impact of Tourism on the Coastal Areas of Sri Lanka with Special Reference to Mirissa Coastal Area

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Abstract

The rising demand for coastal tourist practices island-wide has led to the current emergence of numerous environmental issues. Therefore, the purpose of this study is to investigate whether tourism has any adverse effects on coastal ecosystems in Sri Lanka. Mirissa coastal area in Weligama provincial council, which has shown significant development in tourism practices, is selected as the study's geographical area. Negative impact is first measured using the independent variables of habitat destruction, pollution, carbon emissions, waste generation, and water consumption. Both primary and secondary data have been used to conduct this study, where questionnaires and peer-to-peer interviews have been used to collect primary data, and research studies, coastal and environmental reports, tourism and environmental websites, tourism and coastal-related books, etc. have been used to collect secondary data. Data collected from hoteliers, beach boys, and local communities surrounded by the Mirissa Coast area Moreover, descriptive statistical tools and inferential statistical tools such as correlation and regression analysis were used to analyze the collected data to measure the environmental impact of tourism in the Marissa coastal area. The rise of unauthorized building structures along the coastline, the decline of the extent of the coastline, high deforestation near the coastal area in the last five years, zero coastal conservation programs in the Mirissa area, and quick coastal erosion are among the major negative impacts identified in the study. The study strongly suggests that coastal conservation programs should be launched, and a code of ethics and practices ought to be designed for tourists. Hence, it is important to create a legal and environmental framework for hoteliers, domestic and internal tourists, and local residents of the area and bring their attention to the importance of the coastline and its conservation and protection due to the activities of tourists.

Keywords: Tourism Industry, Coastal Tourism, Negative Environmental Impacts

A Study on Sustainability of Port Operations: The Case of Port of Colombo

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Abstract

The term "sustainable" as a broadly used phenomenon, consists of three dimensions: environmental, social and economic (Triple Bottom Lines). All United Nations (UN) Member States adopted the 2030 agenda for achieving Sustainable Development Goals (SDGs) which can be addressed by any industry. The preliminary intention of the International Maritime Organization related to sustainability is "The conservation and the sustainable use of oceans and their resources". Seaports are complex transport nodes in the global transportation network. Lack of implementation of sustainability growth-led port policies is an identical problem in the maritime sector in many developing countries. This paper investigates the three dimensions of sustainability in relation to seaport operation selecting the Port of Colombo (PoC) as a case. The main research objective is to determine the extent to which the focused port is aligned with the most relevant 11 SDGs out of all 17 SDGs in UN 2030 agenda from 2015 to 2020. A questionnaire was developed and data were gathered from both operational and management level port employees (n=182). Hypothesis testing and paired sample t-test were performed. Analysis results indicated that PoC is only aligned with 9 SDGs out of the most relevant 11 SDGs related to port industry. All the 8 Core SDGs have been developing during the period from 2015 to 2020. However, only one secondary SDG (Gender Equality – SDG 5) has developed well over other 4 Core SDGs. Clean water-sanitation and Decent work economic growth have not been developing from 2015 to 2020 inside PoC. A conceptual model connected with 4 SDGs (Life below water, Industry-innovation-infrastructure, Good health-well-being and Affordable-clean energy) which is specified for sustainability of PoC was derived using Exploratory Factor Analysis and Confirmatory Factor Analysis and Model Fit Analysis. The paper provides policy implications for sustainability policy design in port sector in Sri Lanka.

Keywords: Port Operations, Economic Sustainability, Social Sustainability, Environmental Sustainability, Sustainable Development Goals (SDGs)

Identifying the Factors in Promoting Cruise Tourism in Sri Lanka

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Abstract

Sri Lanka is situated in a strategic location of the modern silk route. Singapore, Goa and Dubai, which are considered as transit hubs have been captured high cruise tourist attraction. But cruise shipping in these countries are popular than in Sri Lanka. Factors affecting to this scenario is not examined well. On the other hand, facilities in Colombo port are very poor. This research is conducted considering identify the factors affecting to enhance cruise operations in Colombo port, Sri Lanka. Main objective is to identify the supply factors affecting to cruise operations and identify issues in enhancing cruise operations in Colombo port. Finally conducted a factor analysis and it extracted overall 4 factors from all 15 variables which initially designated in the study where Cruiser Operators and relevant authorities can get ideas about the service. The 4 factors researcher considered are Infrastructure and Technology, Logistics Performance and Service Level, Quality of the Labor and Natural Attraction. After reliability tests all 4 factors were found internally consistent. And after the coefficient tests 4 factors, Infrastructure and Technology, Logistics Performance and Service Level, Quality of the Labor and Natural Attraction were discovered to be significant. According to outcome Logistics Performance and Service Level and Labor Quality are highly significant with positive b values. This says that they positively and highly influenced on Enhancing cruise operations with positive relationships. The Natural Attractiveness is significant in the Factor summary with a negative b value. This says it negatively and highly influenced on Enhancing cruise operations. Other factors were discovered to be insignificant. Further findings were done based on the study and mentioned in Discussion of Research Findings and recommendations briefly mentioned.

Keywords: Promoting Cruise Tourism, Logistics Performance

Factors Affecting Occupational Health and Safety Noncompliance in Agriculture Related Manufacturing Supply Chains

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Abstract

Occupational Health and Safety (OHS) is a renowned topic, yet often given a less priority in the Supply Chain Management context. Due to this reason, the occupational health and safety non -compliance cases have risen in many industries incurring detrimental costs to their respective supply chains. In order to address this non- compliance issue, this study was conducted as a preliminary study, to identifying the factors affecting Occupational Health and Safety non- compliance. This study is based on agriculture related manufacturing industries in Colombo district. The variables were selected through existing literature and discussions with the management level employees of agriculture related manufacturing supply chains. An exploratory factor analysis was conducted to identify the most influencing factors and they were categorized into five main groups: Ineffective Communication, Procedural Issues, Training and monitoring issues, Workplace Conditions and Other. Afterwards a regression analysis was performed to identify the impact of the mentioned factors on Occupational Health and Safety noncompliance. This research is beneficial in identifying the risk points related to Occupational Health and Safety and taking proactive measures to minimize or terminate those risks. This \will positively impact in minimizing small- and large-scale supply chain disruptions. As this study focuses on small scale businesses that are mostly new businesses or belong to the lowest- tier suppliers, the findings from the research can be used to enhance the awareness and the status of Occupational Health and Safety related Concerns.

Keywords: Ineffective Communication, Non- Compliance, Occupational Health and Safety, Procedural Issues

Customer Satisfaction on the Service Quality of Paid Quarantine Star Hotels in Sri Lanka

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Abstract

Due to travel bans, the COVID-19 outbreak has had a significant impact on the tourism sector. Hotels were forced to go through a period of adaptation and begin turning their hotel rooms into treatment units due to the lack of government quarantine facilities. That is among the greatest measures taken to address the damage that Covid 19 caused to the sector. As service quality is fundamental to positive customer satisfaction, there is a need to investigate how service quality can impact on customer satisfaction. This study identifies the major service quality attributes related to the quarantine hotels and analyze the customer satisfaction towards the services offered by the quarantine star hotels in Sri Lanka. The study evaluated five dimensions which are related to quarantine hotel industry (Medication and Patient Care, Mental Health and Food supply, Hotel room arrangements and services, Empathy on patients and communication and Personal Care) and how they impact on customer satisfaction. The researcher used a quantitative research approach for the study. The target sample was 384 participants who have gone to a quarantine hotel and out from those 115 received valid responses. A structured questionnaire was given through Google Forms to collect primary data. SPSS Statistical Analysis was used to analyze the data. Factor analysis identified five factors related to quarantine hotels. According to the correlation analysis, medication and patient care, mental health and food supply, hotel room arrangements and empathy on patients have a positive relationship and they contribute positively to the overall customer satisfaction. As regression analysis stated, all the dimensions except empathy on patients have impacted positively on customer satisfaction. Thus, a quarantine hotel should have all the medication facilities and specific packages suitable for everyone.

Keywords: Covid 19, Quarantine hotels, Customer satisfaction, Service quality

An Analysis of the Tourism Undergraduates' Perception on Tourism and Hospitality Job Market in Sri Lanka

(With Special Reference to the Period of Covid-19 Pandemic)

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Abstract

Nevertheless, a lot of studies have been conducted and analyzed the impact of the pandemic on the tourism and hospitality industry, and also respective suggestions have been delivered to the industry. Tourism Industry generated several direct and indirect job opportunities in Sri Lanka and around the world. The pandemic of COVID-19 influences globally and additionally in Sri Lanka itself, in which Sri Lanka's one the affected area is the tourism industry and its stakeholders. However, tourism education is somewhat neglected. Since tourism education and students who follow tourism programs are essentially a part of the industry, this study aims to analyze the tourism undergraduates' perception of the tourism and hospitality job market in Sri Lanka with special reference to the period of the COVID-19 pandemic. The survey have been conducted with 50 individuals and 27 questions were asked to the surveyors to observe the impact of covid pandemic on the perception of undergraduate students. The demographic data analysis has shown that the majority of the surveyors are male and are from the age group 18 - 24. The survey has also shown that the individuals are associated with a four-year course in tourism. Again the next segment analysis has proved that increased work pressure has reduced affectivity and learning capability in students. Adequate learning sources and skill development help students in improving job opportunities. The analysis data are justified with secondary articles and journals of the last five years taken from Google scholar.

Keywords: Tourism undergraduates, Undergraduates' perception, Covid 19 pandemic, Tourism Education, Tourism Job Market.

Identify the Potentials for Develop Spiritual Tourism as a Niche Market with Special Reference to Kurunegala District

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Abstract

The roots of spiritualism are expanding to a wider range. It can be seen as integrated with the human mindset and the religious perspective of the people. End of the day most people's ultimate purpose in traveling and tourism will be happiness or getting a break from their anxious lifestyle. In order, to the spiritual concept, it will be offered happiness plus inner peace to their mind. The teachings of the various meditation techniques, and also as religious influence and attitudes will be reasons to change a person considerably. Therefore, this will be offered long-term benefits for human being to change their whole life in an utterly different way. On the other hand, after the covid, 19 people are seeking spiritual answers for the fatigue of their current lifestyle. Most of them are analyzing deeper about life after this plague and movement of traveling behaviors are also about to change accordingly. In this post-pandemic timeline, the Sri Lankan tourism industry also has been severely disrupted and needs an immediate recovery option adjusting to the post-pandemic precautions as well as keen about the changes the tourist perceptions. Thus, Sri Lanka is perfectly fulfilled with the influence of Buddhist cultural attitudes the potentiality and the practicability of spiritual tourism activities will be not quite impossible. Moreover, considering the Kurunegala it is a district where can be found more countryside best place for meditation and spiritual activities, as well as around the area can be found nearly 50 places with the most famous monasteries such as mahamewnawa and umandawa. The study mainly focused to analyze the capacity and the level of the potentiality of the concept among tourists. Hence Sri Lankan tourism industry needed more innovative concepts rather than mass tourism activities to promote the country intentional level. This study will be hopefully supportive of providing direction to enhance Buddhist spiritual tourism in the area.

Keywords: Spiritual tourism, Visitor profiles, Tourist behaviors, Meditation, Buddhist tourism.

A Critical Analysis of Tourism Stakeholders' Perception on the Development of Cruise Tourism Industry in Sri Lanka

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Abstract

Cruise Tourism is a very identical market in the Global travel sector which is having a higher growth rate nevertheless a Niche market in the Tourism Industry of Sri Lanka with a high potential for Growth and developing aspects. The purpose of this study was to investigate the tourism Stakeholders' perception of the development of the Cruise tourism industry in Sri Lanka. The research was based on the collection of data through an online questionnaire survey with tourism stakeholders. This particular case was conducted with a quantitative research method. Statistical information obtained from 130 respondents were analyzed was and processed with MS Excel software, SPSS, and data analyzed using demographic data analysis, factor analysis, correlation analysis, and regression analysis. The most important cruise tourism development determinant was Port Infrastructure and addressing the investments in port infrastructure will improve and accelerate the cruise tourism development rate. Further, the six main determinants of cruise tourism development factors which were; shore tourist attraction, ports, port management, cruise tourism alliances, the image of tourist attraction, and shore excursion management and services were ranked higher according to the perception of the tourism stakeholders', therefore and those factors were high impact on the development of cruise tourism in Sri Lanka which will enhance the development of the industry and fill the gaps in growing and shortages. All the independent variables had a positive significant relationship with cruise tourism development factors as per the perception of the stakeholders' which will direct the development process with proper directions to gain the competitive advantage of the cruise tourism industry in the Asian region. The positive significant relationship will illustrate the developing aspects of the cruise industry and enhance its over-roll development of it.

Keywords: Cruise Tourism, Tourism Stakeholders, Perception, Development of Cruise Industry, Sri Lanka.

Effectiveness of Employment Retention Strategies in Five Star Hotels in Colombo, Sri Lanka

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Abstract

Tourism is one of the biggest and fastest-growing industries among the other industries in the world. A hotel is a very labor-intensive business. The quality of a service is determined by the hotel employees. Every hotel business attempt to retain qualified personnel for longer periods of time in order to maximize their productivity. However, retaining talented employees become a major challenge for every hotel business because of the competitiveness in the market and the changing desires of employees. According to the industry expertise of the hotel industry, a severe shortage of skilled employees in the hotel industry, especially hotels in Colombo is predicted. Also, the pandemic situation has made huge impact on the economy in Sri Lanka, especially to hospitality industry in the service sector has been terribly hit. Due to that those employees in the hospitality sector faced a lot of financial issues, and they experienced the insecurity of their jobs. Therefore, nowadays, it becomes a reason for the low retention and high turnover of employees in the hospitality sector. As a result, the study is focus on measuring the effectiveness of employment retention strategies in the five-star hotels in Colombo area in Sri Lanka. The study is based on quantitative approach, collecting data through a questionnaire. 350 questionnaires were distributed among the selected five-star hotel's employees following simple random sampling technique. The findings of the study revealed that there is a positive strong relationship between selected employee retention strategies and employee retention. Also, researcher found the most effective retention strategies on employee retention in five-star hotels in Colombo.

Keywords: Effectiveness, Employee Retention, Retention Strategies, Five-Star Hotels, Hotel Industry

Identify the Level of Contribution of Cultural and Heritage Values for the Tourism Promotion in Sri Lanka
(Special reference to Jaffna District)

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Abstract

From the ancient time to yet Sri Lanka actively engage with the tourism industry. Cultural, historical, and archaeological attractions abound in Sri Lanka. These values are considered as an important area for future tourism developments. Therefore, the main objective of this study is to identify the level of contribution of the cultural and heritage values for the tourism promotion in Sri Lanka. Special reference to Jaffna district. Therefore, this study is argued, how can we see the artistic cultural and heritage values of Jaffna and let them be known to the outside world, thereby attracting more and more travelers. This study was conduct in the cultural and heritage sites in Jaffna district. To attract both foreign and domestic tourists to the Jaffna district. And the study problem is Jaffna district has a wide variety of art, cultural and heritage features that have a wide range of historical evidence from ancient times, especially temples and libraries etc. But the number of tourists to Jaffna district is very low. Thus, despite all the resources and capital in the district, but tourist arrivals in Jaffna are very low, especially the arrivals of foreign travelers as well as domestic. The literature review lightly analyses and reviews previous research on the same topic in the Jaffna district. There are various obstacles that may obstruct cultural and heritage tourism in the Jaffna district may be hampered by a lack of cooperation among stakeholders, limited money, and a lack of attention to the demands of tourists. The recommendation creating an innovative promotional program, coordinating with essential parties, and preserving and protecting the environment. In addition my dissertation I will also discuss the need to take action in the present and future to make Jaffna a representative cultural and heritage site and its demands.

Keywords: Cultural, Heritage, Artistic, Value and Tourism

Identifying the Impact of Green Practices of Hotels on Revisiting Intention and Overall Satisfaction of Domestic Travelers

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Abstract

As consumers become more aware of the seriousness of environmental problems and the importance of environmental protection, more hotels are implementing green practices to address their customers' environmental concerns. This is due to undeniable negative environmental impacts derived from hotel activities daily. Therefore, all the hotels are grabbing this opportunity to conserve the environment and at the same time, they are reaping benefits from the green practices. However, despite the promising benefits they may gain, the hotels' operation in green practices are still low due to several factors that influenced the hotels whether to implement these green practices or remain with the current operational practices. Thus, the aim of this study is to investigates the impact of green practices of hotels on revisiting intention of domestic travelers in Sri Lanka. This particular case was conducted with a quantitative research method. A sample of 385 domestic travelers who have visited Colombo 5-star hotels are drawn, using a convenient sampling technique that will be used in data analysis based on Structural Equation Modelling. According to the results of the study, it was identified that there is a positive relationship between "green" practices and domestic traveler's revisiting intention. Findings provide valuable input to hoteliers in determining their existing environmental status and the amount to which they need to improve their operations in order to increase domestic traveler's satisfaction and return intentions. Also offers an opportunity to adjust to the developments and trends in the tourism industry that are apparent in post-COVID-19, such as the growing interest in sustainable tourism and green practices.

Keywords: Green practices, Environmental protection, Sri Lanka hotels, Domestic travelers, Revisit intention

Factors Affecting Lack of Women Participation in Sri Lankan Tourism Industry: Special Reference to Hotel School Leavers in Kandy District

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Abstract

The tourism and Hospitality Industry is Flourishing Industry all over the world. The rapid expansion of national tourism has led to significant employment creation. This Study aims to scrutinize the representation of the Lack of women's Participation in the Tourism and Hospitality industry in Sri Lanka and gain insights into the factors affecting their low participation in the Tourism sector. This paper emphasizes the reason for the lack of women's participation in the world and Sri Lankan tourism industry and the importance of the tourism industry in generating female employment. Tourism industry work is attractive to all women and helps young, single, mothers, or older people. In Sri Lankan context the reasons for low female participation are misperceptions, prejudices, and lack of awareness, patriarchal attitudes, socio-cultural influences, deferring levels of social values of different professions are main things. Higher discrimination in the working environment and long working hours are the main reasons for preferable for male employees and unfavorable for female. And also there is a relationship between Gender equity, lack of support, organizational culture, and personal characteristics with This Lack of women participation. The main objective of this study is to identify that relationship and impact. The Method employed for research is Convenience Sampling, in the form of Data Collection. The outcome of the research is based on 100% of representation of females in Hotel School Leavers in Kandy District. The statistical tool used for the analysis and presentation of data in this study was the SPSS ver. 22. Recommendations presented include the policies to encourage the participation and involvement of women in the Tourism industry, especially the hospitality sector. Indicating existing HR policies to provide equal and equitable opportunities with better satisfaction, government innovations, and improvement of policies in public and private sector responsible authorities, improved facilities, and suggestions for work-life balance for female employees.

Keywords: Women Empowerment, Workforce Participation, Tourism Industry, Women Employment, Lack of women participation.

Identify the Potentials of Developing Boating Recreational Activities in the City of Colombo

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Abstract

Boat tourism can be defined as a recreational service that provides a brief voyage in a relatively small boat for touristic purposes, usually starting and ending in the same location and lasting less than a day. A survey of the literature on boat tourism, as well as people's perspectives and experiences with boat Rides available in Colombo city, is considered for this research purpose. According to their opinions on boat tourism, it is going to be evaluated on economic, sociocultural, and environmental repercussions, as well as general development and future policies of boat tourism in Colombo city. The information about the existing research related to proposed research is gathered by using research papers, journals and many other ways. After gathering the details of the existing researches, the current situation of the field and the importance of the proposed research is identified. Primary data is gathered by sharing questionnaires with the people, who has experienced the boat rides in the Colombo city for pleasure. Gathered primary data is used to identify the real-time requirements related to the proposed research. The secondary data is gathered by reviewing journals, books, and research papers. After gathering secondary data, the required areas which are needed to investigate are identified. This paper aims to analyze about the potentials of developing the boating recreational activities in the city of Colombo and to see, how to develop the boat tourism in Colombo city area. The main objectives of the research are to identify and evaluate the relevant factors research, which are related to the proposed research topic, to identify the impacts of the boat tourism in Colombo city area, to make recommendation to develop the boat tourism there and to evaluate the future of the boat tourism in the subject city, after using the findings made by propose research.

Keywords: Boating Recreational Activities, Colombo City, Boat Tourism

Determining Challenges of Implementing Green Supply Chain Management Practices in Food and Beverage Businesses

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Abstract

Green Supply Chain Management is a solution created under the environmental performance of Sustainable Supply Chain Management. The Food and Beverage industry is one of the highest demanded industries and, as per the literature, this has a higher impact on the environment. As an economic driver of the Sri Lankan economy, micro, small, and medium businesses have considerable responsibility on this. To overcome this problem with environmental damage, implementing green supply chain management has been recommended. And there were issues with the implementation of this concept among the micro, small, and medium scale food and beverage businesses. Hence, this research study focuses on determining the challenges of implementing Green Supply Chain Management practices effecting micro, small and medium scale businesses of the food beverage industry by conducting a survey questionnaire among those who have engaged with the industry within the Kaduwela municipal council area. The other two objectives of the study were to identify the most significant factor and giving recommendations to overcome the identified challenges. An online questionnaire and a physical questionnaire were used to gather data. Data was collected from more than 300 respondents. Gathered data was analyzed with Microsoft Excel and Statistical Package for Social Sciences. According to the results, three factors were extracted and confirmed reliable: amongst the most significant factor was awareness. The recommendations have been given based on the comments of the respondents as well as based on the results to overcome these challenges.

Keywords: Green Supply Chain Management practices, Food and Beverage Industry, Micro, Small and Medium Businesses

Analysis of Opportunities and Challenges in Promoting Yacht Tourism in Sri Lanka

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Abstract

A yacht is a sailing or power vessel that use for pleasure and sports. The yachting industry has been booming for years in the maritime fleets that cater to private or charter clients. According to the Yacht Market Size, Share, and trends analysis report 2021-2028, the demand for yachts has gradually increased and the global market was valued at USD 8.15 billion in the year 2020. The Asian Pacific region has determined to emerge as the fastest-growing regional market and currently, China, India, and Japan are dominating the market. Sri Lanka is a country to develop the Yacht industry with its special geo-location, attractions, and other capabilities and other potentials. This study is conducted to identify the opportunities and challenges in promoting Yacht Tourism in Sri Lanka. There are only a few research have been conducted to identify the opportunities and the challenges for developing the yacht industry at the international level and there's no study found at the local level. Therefore, this study was conducted to identify the primary level of information regarding promoting yacht tourism in Sri Lanka. Basic insights for conducting this study were gained from several studies conducted in several countries which are comparatively more developed in the yacht industry than Sri Lanka. This study enables us to identify the level of commonly found opportunities and challenges that has a significant relationship with promoting yacht tourism in Sri Lanka. Moreover, the literature review indicates more information about yachts, overall yachting tourism, and the economical contribution of yachting tourism activities. This study was conducted by gathering data through an online questionnaire distributed to 82 employees who are working in Sail Lanka Pvt. Ltd Company. Collected data were analyzed using the Statistical Package for Social Sciences. Furthermore, secondary data such as journal articles, peer-reviewed various articles, credible publications reports, and websites were used in this research.

Keywords: Yacht Industry, Yachting Tourism in Sri Lanka, Opportunities, challenges

The Impact of Recreational Events on Host Community with Special Reference to Hikkaduwa

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Abstract

The purpose of this study is to determine the negative and positive impacts of recreational events on host communities in Hikkaduwa. The research objectives are to determine the negative and positive impacts of recreational events on host communities in Hikkaduwa, and to examine the various recreational events in Hikkaduwa and their significance, and also to determine how local event organizers in Hikkaduwa use recreational events as a strategic tool for the development of host community needs. During the research researcher have identified that there were many advantages and significance. There are number of events including the entertainment events, Event significance and the ownership of events which were conducted as the hotel events, club or the bar events and the Independent Events or the free events. Infrastructure development, quality of life with the increase income in society, employment, reputation, level of happiness, level of transport and the social involvement and main strategies for development of host community needs of local events organizers, in Hikkaduwa are the main advantages with the event tourism. However, during the research researcher have identified that the economic impact with the income generation and job creation and there is a socio-cultural impact with the social relationship and living standards can be seen with this event tourism development.

Keywords: Event, Host Community, Hoteliers, Tourism, Hikkaduwa

Factors Influencing Entrepreneurial Intentions of Tourism and Hospitality Undergraduates in Sri Lanka

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Abstract

Entrepreneurship has long been acknowledged as a tool for a country's continued economic success. Entrepreneurship has a significant impact on generating beneficial social and economic development, as well as expanding employment prospects. Entrepreneurship also fosters innovation, allowing for faster economic developments. Undergraduates in Sri Lanka choose to work for the government or the corporate sector rather than start their own business. As a result, Sri Lanka has a low rate of entrepreneurs, which has a direct impact on the country's economic progress. As a result, entrepreneurs with a background in tourism and hospitality management are less likely to be noticed. As a result, encouraging entrepreneurship among undergraduates studying tourism and hospitality management is critical. In this sense, the entrepreneurial purpose of tourism and hotel management undergraduates plays a key role. The major goal of this study is to determine the factors that influence entrepreneurial intent among tourism and hospitality management undergraduates in Sri Lankan universities. A total of 303 tourism and hospitality management students from public and private universities responded to the structured survey for this study. The data was analyzed using the multiple regression approach, with SPSS (Statistical Package for the Social Sciences) version 23 as the analytical tool. The study's findings demonstrated that influencing elements such as attitudes toward behavior, subjective norms, and perceived behavior control had a beneficial impact on undergraduates who want to start their own business. In order to expand the entrepreneurial intention of tourism and hospitality management undergraduates in the Sri Lankan setting, this study identifies important elements that must be addressed.

Keywords: Undergraduates Entrepreneurial Intention, Tourism and Hospitality Management Undergraduates, Multiple Regression.

Investigating Customer Adoption to Digital Banking Platforms in the Post COVID –19 Pandemic in Sri Lanka

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Abstract

Banking sector digitalization plays one of most important part in an economy. During COVID – 19 pandemic period Sri Lankan customers who used only traditional banking methods faced many difficulties because banks were closed for several times. In this study the main objective focuses on customer adoption to digital banking platforms during post COVID -19 pandemic in Sri Lanka and sub objectives are to investigate the relationship and impact towards customer adoption for digital banking platforms, to compare the customer adoption to digital banking among customers in private and public banks and to discover the challenges faced by customers using digital banking platforms during the post COVID -19 pandemic. As the digital banking platforms in this study researchers considers Automated Teller Machines, Electronic Fund Transfers, Abroad Electronic Transfers, Bank Credit Debit Cards, Digital Bill Payments, Internet Transactions, Digital Wallets, and E-vouchers. This study goes with cluster sampling with primary data covering fourteen districts in Sri Lanka. Data was collected through distributing google questionnaires and conducting interviews. To fulfil the objective of this study researchers was able to collect 421 accurate respondents for the google questionnaire and conduct 40 interviews. Data analyzing methods were correlation, regression, chi-square and thematic analysis and researchers used a Statistical Package for the Social Sciences and manual techniques to conduct the analysis. In this study independent variables are Perceived Ease of Use, Perceived Usefulness, Perceived Risk, Perceived Trust, Digital Literacy and Accessibility and the dependent variable is Customer Adoption. The result concluded as there is a significant impact of Perceived Ease of Use, Accessibility and Digital Literacy towards Customer Adoption and there isn't a significant impact of Perceived Usefulness, Perceived Risk, Perceived Trust to words Customer Adoption. Private bank customers have adopted for digital banking than public bank customers. ATM related issues are the major challenges customers have faced.

Keywords: Covid-19 pandemic, Digitalization, Digital Banking Platforms

Role of Logistic Service Quality on Customer Satisfaction in Omni-Channel Retailing

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Abstract

The study is conducted to determine the impact of Logistic Service Quality (LSQ) on customer satisfaction in omni-channel purchasing scenarios which are Buy in Store Ship Direct (BSSD) and Buy Online Pick in Store (BOPS) in Western province of Sri Lanka as only few numbers of studies were found in this subject area of study. The research problem addressed is how LSQ impact on the customer satisfaction in BSSD and BOPS purchasing scenarios. Whereas the objective of the study is to investigate how LSQ impact on the customer satisfaction in BSSD and BOPS purchasing scenarios. LSQ is the desired quality that customers expect from logistical activities. Furthermore, availability, condition, timeliness, order accuracy and information quality are the designated factors to measure LSQ. The study is carried out on a deductive approach as the study count on measuring a prevailing theory. Western province of Sri Lanka is selected as the population of the study, as most of the retailing companies who are operating omnichannel platforms are in this area in Sri Lanka. Purposive sampling method was used, and the sample size was identified as 384. Through an online questionnaire the required data were collected from the sample which consists of omnichannel customers. A 5-point Likert scale was used to calculate the impact of quantitative data. Regression analysis was used to analyze the data for both the scenarios. For the study, 95% confident level was used as the significant rate. The results of the regression analysis discovered that condition and information quality are insignificant in BOPS purchasing scenario and only condition is insignificant in BSSD purchasing scenario.

Keywords: Omni-channel retailing, Customer satisfaction, Logistic Service Quality.

Tourists' Demand for Rural Tourism Activities in Sri Lanka: Special Reference to Heeloya Village in Central Province

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Abstract

Rural tourism is one of the fastest-growing niche markets in the world and mainly connects with the rural grassroot lifestyle of the local people. Sri Lanka is a destination with potential for the growth of rural tourism, enrich with authentic rural traditional rural tourism activities. Heeloya is one of the best destinations to experience rural tourism activities in Sri Lanka, which one of their main livelihoods. According to many scholars, rural tourists are highly dependent on the popularity of the destination and their willingness to experience traditions. However, there are relatively fewer studies done focusing on factors that affect tourism demand as common. Therefore, this research aims to examine and identify the demand of tourists for the rural activities in the Heeloya village area and the factors that affect their demand. A survey design that was quantitative and based on an empirical study. A self-administered questionnaire was used to collect data from the tourist. A sample of 150 respondents was selected using the convenience sampling method, from the Heeloya village. The data were analyzed using SPSS 21 statistical software. Descriptive statistics and inferential statistics applied to examine the demand for traditional activities, as perceived by foreign tourists who came to Heeloya Tourism village. Results suggest that most of the tourists have chosen rural activities associate with Heeloya village in terms of getting experiential education and popularity information of the destination has affected their demand for the rural activities. Facilities provided in the destination and price of the activities were not much significance on the tourists' demand and the same time demand for rural tourism is an instrument to eradicate multidimensional poverty in remote areas in Sri Lanka.

Keywords: Heeloya village, rural tourism activities, tourists' demand.

Achieving a Resilient Built Environment through Urban Environmental Movements to Ensure Food Security

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Abstract

The recent economic crisis in Sri Lanka has created a vicious cycle of food insecurity, environmental degradation, and malnutrition. As a step taken to ensure food availability in households, Hatton National Bank PLC is conducting agricultural development programs 'Saru Gewattha', to encourage the general public as well as the employees of all the bank branches in Kandy district with the aid of the Department of Agriculture. These programs mainly focus on encouraging gardening at a household level in urban settings, managing the available space to build resilient cities, wastewater management and organic fertilisers. Even though such programs have been conducted in the past, it is important to assess their productivity and impact on community resilience. The aim of this study is to accurately assess the impact of agricultural programs in building resilient urban environments to face the food crisis. Surveys were done among the participants of the programs, employees, household gardeners, farmers, and stakeholders at the monthly programs as well as the farmers market conducted on every third weekend each month. The study finds that such programs have a positive impact on the targeted groups in terms of food security, mental health, and household waste management. It should also be concluded that the benefits of well targeted and informative agricultural movements deliver profound benefits in building resilient cities. But further progress could be achieved by imposing strong policy work at national level hand in hand with distribution of budgets to conduct programs at local levels.

Keywords: Community gardening, Resilient built environment, Urban farming

Impact of Government Budget Announcement on Stock Market Return: Evidence from Colombo Stock Exchange

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Abstract

Stock Market is the one of the major places where economic direction is presented. Hence, there are number of factors that are being influenced toward the stock market return. Stock market return may be changed with some significant incidents which have taken place in the country. Among them, Government election and budget announcements are two major incidents in a country. This study has been conducted to analyze the impact of government budget announcement on stock market return. The influence is measured in terms of daily average returns and volatility over the short term, medium term and long-term period in pre and post budget announcement period. The data has been collected for nineteen budget periods from 2002 to 2020. The data were analyzed using statistical tools that are paired T-test and F-test. Paired T-test is conducted on average returns and F-test is conducted on variances over the period i.e., 3, 15 and 30 days in pre and post budget period. According to the results, it has been shown there is a significant impact of budget announcement in short term then it gradually reduces in medium term and finally diminishes in the long term. The implication of this paper is that the investor should more concern about investing in the stock market around the budget period.

Keywords: Budget Announcement, Market Returns, Variances, Pre-budget period and Post-budget period

Impact of Mobile Banking Service on Customer Satisfaction: with Special Reference to Sri Lankan Commercial Banks

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Abstract

In today's telecommunications and internet-based digital business environment, mobile banking is a watershed moment for the banking industry. In Sri Lanka, banks are becoming more aware of the importance of understanding customer psychology as demand for mobile banking services grows. Understanding the characteristics of mobile banking services and how banks can use mobile banking to build strong relationships with their customers is critical to the growth of mobile banking services. As a result, the study's main objective is to figure out what factors influence customer satisfaction with mobile banking services. In the Sri Lankan banking industry, this research aims to determine the impact of ease of use on customer satisfaction, mobile banking responsiveness on customer satisfaction, cost of service on customer satisfaction, and mobile banking security on customer satisfaction. This study collects, analyzes, interprets, and presents data using descriptive research design methods. The relationship between mobile banking and customer satisfaction was demonstrated using a descriptive research design. The participants in this study represent all of Sri Lanka's bank customers. The data for this study was gathered using a simple random sampling method and a questionnaire distributed by the researcher to participants. The descriptive statistics were used to analyze the data. For data analysis, the statistical packages SPSS and Microsoft Excel are used. According to the findings, there is a strong, positive relationship between customer satisfaction and ease of use, a strong, positive relationship between responsiveness and customer satisfaction, a strong, positive relationship between cost of service and customer satisfaction, and a strong, positive relationship between security and customer satisfaction.

Keywords: Mobile Banking Service, Customer Satisfaction, internet-based digital business environment

Determinants of Customer Repurchase Intention in Online Shopping in Sri Lanka

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Abstract

With the rapid growth in the technology, there is an increase in usage of internet for different purposes. One such use is doing transactions for consumers at the global market through internet. Currently the consumers' confidence on the available product and online payment system available have made a great impact on the perception of consumers towards online shopping. For an online business, building trust is significant as it directly effects on the consumers repurchase intention. Perceived Ease of Use, Trust, Customer Service and Perceived Enjoyment (independent variables) has been identified as the determinants which effect on satisfying the customers of the business that are directly influencing on Consumer repurchase intention (dependent variable). The related local literature available in the study area is very low. Technology Acceptance Model (TAM) was the theory used in developing the conceptual framework of the research. A survey questionnaire has been used among 385 Sri Lankan online shopping platform users in collecting required information from all the 09 provinces of Sri Lanka. The identified determinants of repurchase intention were measured with a Five Point Likert scale. With the analysis of the data that has been collected by distributing the survey questionnaire, it has been clearly identified that there is a positive relationship between the determinants of the Repurchase Intention that was considered in the research, with the Repurchase Intention of online shoppers in Sri Lanka. Among the chosen independent variables, customer service is the mostly affecting factor on repurchase intention. Therefore, these areas should be focus by the sellers when opening and continuing their businesses through internet.

Keywords: Online Shopping, Repurchase Intention, Customer Service

Assessing the Determinants Influencing Passenger's Perception on Selecting Bus as a Public Mode of Transport during the New Normal: The Way Forward with Covid-19

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Abstract

Transportation starts as a derived demand to fulfill movement needs of people. Public transportation is one of the key transfer modes in a well-integrated transport system which facilitates an efficient and effective service by maximizing economic and service benefits. In Sri Lanka's context, which includes both SLTB and private buses, modal share of bus transport accounts for around 46.6% consisting both SLTB and private buses. With COVID-19 pandemic at large, the effects of it are felt here at Sri Lanka as well. With the first confirmed case reported in the island reported on 27th January 2020, the country has gone through multiple lock downs and quarantine curfews up until now which all added negatively to the economy of the country while public transportation being at the fore front as a highly affected industry. Passengers have become far more vigilant and cautious when selecting their mode to fulfill the travel needs. This study was done to assess the determinants influencing passenger's perception on selecting bus as a public transport mode in the new normal. The primary objective of the study was to identify the factors influencing the passenger's perception in selecting bus as a public mode of transport during COVID-19 pandemic. The author has determined five main factors have significant or marginal effect on passenger perception during the pandemic through the analysis. Finally, recommendations have also been suggested to enhance bus transportation during the pandemic.

Keywords: Bus Transportation, Passenger Perception, Covid-19 Pandemic

Social Impact of Resettlement Caused by Kandy Multimodal Transport Terminal Construction

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Abstract

Development of infrastructure is key element supporting to the National economy of a country and it has strong relationship with Logistic and Transport sector. Rapid urbanization continuously demands high quality services especially in and around urban centers. In order to provide more infrastructure facilities mainly the transport infrastructure, it requires lands occupied by people. Therefore, Land acquisition and resettlement is part and partial component of any development project and it make negative impact on people get affected. The negative impact to the Affected Persons were justified by authorities by interpreting it as "Few has to sacrifice for the betterment of many". However, experience of past resettlement projects reveals that many resettlement programs have created impoverishment. It is also noted that resettlement creates social unrest and people protest against development projects leading to delays in completion and cost overruns. Therefore, it has strong link with the logistics and transport sector which is highly depend on transport infrastructure. Kandy Multimodal Transport Terminal (KMTT) has planned to address the issue of traffic buildup in the city which is seriously disturbed city functions and negatively impacted on city economy by improving public transport service. In order to construct the Multi Modal Terminal around 820 people who have engaged in business and other livelihood activities in the Good Shed Bus Stand (GSBS) premises have relocated by paying compensation and other support services. This study intended to identify the impact on Affected People due to relocation. In the KMTT project there are two main categories of people, Business Operators and Shop assistants and three-wheeler operators. Two separate questioners were administrated for a sample of 255 persons. In the analysis it is found that income of business operators has increased while shop assistants do not show significant change.

Keywords: Resettlement and Development, Involuntary Resettlement, Impact

Firm Level Determinants on Apparel Industry Export Performance in Sri Lanka with Special Reference to Katunayake Export Processing Zone

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Abstract

The textile and apparel industry have been one of the most important sectors in Sri Lanka since 1986, and the top net foreign exchange earner since 1992. The apparel industry in Sri Lanka is the country's largest single employer, employing over 400 000 people including a significant number of women. This industry has earned a global reputation for ethically producing high-quality apparel. Sri Lankan apparel industry productions highly depend on foreign raw materials. Because of the unprecedented economic crisis, the country is unable to pay for imports. It impacts production and targets achievements and the firm's export performance. The purpose of the research is to examine the firm level determinates of apparel industry export performance with special reference to the Katunayake export processing zone. This study used a quantitative method and a structured questionnaire was used to collect data from one hundred and seventy-six administration employees based on nine apparel manufacturing and export firms registered under the Board of Investment. Statistical data were processed using Statistical Package for Social Science and Microsoft excel. The analysis tools used in this study are demographic factor analysis, descriptive statistics, validity, and reliability test, correlation analysis, and multiple linear regression. This research presents the impact and relationship between firm-level determinants and apparel export performance. The researcher observed that all three independent variables have positive coefficient values, but management characteristics are not reached a significant level. It can be concluded that firm characteristics and firm capabilities have an individual effect on apparel export performance and management characteristics did not have an individual effect on the dependent variable. Recommendations and future research areas provided at the end of the study focus on improving firm-level apparel export performance.

Keywords: Export performance, Apparel industry, Firm characteristics

A Study on Influential Factors Affecting Last-mile Logistics Efficiency of Largescale E-Commerce Companies in Sri Lanka

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Abstract

Logistics as a part of supply chain process plays a vital role by connecting different parties to fulfill their supply and demand while last mile logistics process is the end delivery part of an overall logistics delivery process. Main aim of this study is to analyze the influential factors on the last-mile logistics efficiency of large-scale e-commerce companies in Sri Lanka such as Daraz, Abans and Singer. These websites have received several negative reviews from customers owing to various reasons mainly depending on the logistics process such as damages, delays in delivery and way of handling their packages. Initially, author has identified five group of independent variables which consist of 20 sub variables and aimed to analyze the relationship with dependent variable of the last mile logistics efficiency. Accordingly, author has used the casual research design to structure the research study and developed an online questionnaire survey to collect the data to analyze the relationship out of the 490,000 population who engage with this last mile logistics process when buying their electronic items via ecommerce platforms. Accordingly, author has set the sample as 384 and collected 363 responses based on convenient sampling technique. In the context of analysis, author has conducted many descriptive analysis and statistical analysis while having reliable data set with Cronbach alpha over 0.7. Factor analysis has concluded that there are only two key variables exist in the variables set as most of them have similar characteristics thus author have renamed those extracted variables as facility availability and operational efficiency. These variables have higher mean values and medium strengthen positive correlation with last mile logistics efficiency. Regression analysis and hypothesis testing also further confirmed that extracted two factors have significant relationship with last mile logistics efficiency in large scale e-commerce companies in Sri Lanka.

Keywords: Last mile logistics efficiency, Facility availability, Operational efficiency

Impact of Internet of Things on Supply Chain Integration to Empower the Warehouse Performance of Apparel Industry, Sri Lanka

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Abstract

The Internet of Things (IoT) is the next generation of Internet-connected devices and sensors embedded within information and communication technology (ICT) systems in a digitally enabled environment. It supports supply chain process integration by capturing and transferring key information in real-time. Integrating the emerging IoT into the current legacy of ICT systems is unique because of its intelligent, autonomous, and pervasive applications. While the impact of ICT enabled Supply Chain Integration (SCI) in improving supply chain performance is extensively researched, empirical studies on emerging IoT technologies in integrating warehouse processes are limited. It remains overly eloquent in literature for its essential benefits. Thus, it raises the question of whether IoT technologies have the capability to integrate supply chain processes and influence warehouse performance through the power of data capture and exchange. Therefore, the main objective of the research is to examine the progressive impact of IoT on the three dimensions of supply chain integration processes in the apparel industry. The secondary objective is to determine the impact of the IoT enabled supply chain integration on the warehouse performance of the apparel industry in Sri Lanka. This study is based on a conceptual framework that uses supply chain integration (suppliers, internal, and customers) as variables and on the results of a questionnaire survey of 107 employees who work in and around warehouses in Sri Lankan companies that make clothes. The researcher examines the Internet of Things and its significant impact on the two-dimensional model. It is with consumers and the other is with manufacturers and how those measurements affect the efficiency of the supply chain. The above-listed variables were evaluated using correlation and it was found that the variables had a clear positive association with the output of the supply chain. However, a very low correlation between the internet of things capability and internal integration has been found. Therefore, it can be interpreted that the Internet of Things attributes collective of consumer and supplier integration affect for the better performance of the warehouse.

Keywords: Apparel Industry, Internet of Things, Performance, Supply Chain Integration, Warehouse

A Study on Barriers and Drivers on Industry 4.0 Readiness and Adaptation: Special References to Supply Chain Operations of Large-Scale Manufacturing Organizations in Sri Lanka

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Abstract

Technological development is moving rapidly, enabling manufacturing companies with new possibilities for digital transformations to offer products and services. Such modern technologies are, among others, discussed under the umbrella term Industry 4.0. Supply Chain 4.0 is the application of Industry 4.0 technology to supply chain activities like design and planning, manufacturing, distribution, consumption, and reverse logistics. Competition in the global manufacturing industry is increasing day by day. New technologies give industrial organizations new opportunities for digital transformation, allowing them to offer competitively priced goods and services to existing and new customers. The question is whether the Sri Lankan manufacturing industry is ready to adopt these new technologies in their supply chain process. Therefore, the primary objective of the research is to identify to what extent the manufacturing organizations in Sri Lanka are ready to implement Industry 4.0 technologies in their supply chain processes. The secondary objectives are to find the main drivers and barriers that make it hard for Sri Lankan manufacturing organizations to use industry 4.0 technologies in their supply chain operations and to suggest ways that they can use industry 4.0 technologies in their supply chain operations. This research is based on the results of a questionnaire survey of 199 employees working within the supply chain departments of large-scale manufacturers about their readiness for digitalized manufacturing and their actual practice in this area. The research provides empirical evidence that perceived drivers for Industry 4.0 lead to increased Industry 4.0 readiness, which, in turn, leads to a higher degree of practicing Industry 4.0. The research also finds that barriers make companies less Industry 4.0 ready, but this apparently does not have any significant impact on Industry 4.0 practice. The results are important for manufacturing companies to keep in mind as they plan their transitions to digital processes.

Keywords: Drivers, Barriers, Readiness, Adaptation, Industry 4.0, Manufacturing

Analyzing the Factors Affecting the Urbanization Growth on Logistics and Transportation in Colombo Metropolitan Area

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Abstract

Analyzing the factors affecting the urbanization growth on logistics and transportation in Colombo metropolitan is investigated in this research. As a result, the research was conducted to answer key research topics such as what variables are influencing current urbanization expansion. So, this research work helps to enhance the urbanization in positive way and mitigate urbanization negative effect, helps as an information gathering source to government parties who are involved in construction, development, planning in the Colombo metropolitan area. On the other hand, increase the awareness about urbanization patterns and national importance of the characterizing and the impacts of urbanization. The study includes a primary data collection in the form of Google form for the researcher to fulfil the aims. Furthermore, the study applies a Regression Model to achieve the primary goal of determining what factors are influencing present urbanization growth. Other analysis techniques used in the study included descriptive statistics, correlation analysis, Bartlett's test, factor analysis, and the Regression Analysis. Accordingly, the researcher recognized elements such as population growth, human behavior, unforeseen situations, events, and occurrences as having an individual influence on factors affecting present urbanization growth from the survey done for residents in Colombo Metropolitan Area. Furthermore, the researcher recognized "Purchasing power of people," "Demand for living spaces," and "Productivity" as the key repercussions of present urbanization expansion, as well as "Road traffic flow," "Transportation," "Industrialization," and "Price inflation." And accordingly, from the survey conducted for the commuters, the researcher identified factors such as "Growth of population", "Human behavior", "Unforeseen circumstances" has an individual effect on the current Urbanization growth.

Keywords: Urbanization growth, Industrialization, Urban Pull, Urban Push

The Impact of the Service Quality on Customer Satisfaction Level at Bandaranaike International Airport (BIA), Sri Lanka

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Abstract

The aim of the study was to find appropriate solutions to problems which are related to facility services in terminal of Bandaranaike International Airport. Customer satisfaction survey is an effective tool to inquire what customer really needs and expects. Therefore, measuring the level of customer satisfaction on terminal facilities was the objective of this research. Suggestions for improvements was proposed based on the results of survey and models. Researchers use various methods to evaluate customer satisfaction on service which is offered to client. This particular case was conducted with quantitative research method. Online questionnaire was used for data collection. Statistical information was processed with MS Excel software, SPSS and analyzed using SERVQUAL model which is applied to airport terminal characteristics and technical requirements. According to the results of survey the level of customer satisfaction on terminal facilities was fairly good. However, there was a lack of modern looking equipment and visual appearance of materials associated with the services and physical at BIA. Other than the terminal facilities, results of the survey ascertained that on time service delivery is not reliable, lack of responding to customer requests, and lack of individual attention to customers. Suggestions that were provided at the final part of the study concentrate on adapting terminal facilities to the needs of passengers. The recommendations cover all aspects that caused passengers' dissatisfaction on facility services. Special attention was paid to the size of premises and interior facilities. Survey results depict with the geographic location, BIA can be reinstated as the hub of the Indian Ocean.

Keywords: Service quality, SERVQUAL model, Customer Satisfaction, BIA - Sri Lanka, Terminal facilities

Analysis of the Impact of Outsourcing Activities on the Lead Time of Apparel Industry in Colombo District

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Abstract

The goal of this research is to analyze the impact of outsourcing activities on garment product lead times and improve the apparel industry's performance. The study provides the answers to the questions on factors that influence outsourcing and lead time. It is also important to figure out the link between outsourcing and lead time. This study is used simple random sampling to select a sample of 15 apparel companies in the Colombo district, preventing any bias in the data. Transportation, warehousing, procurement, and packaging outsourcing are independent factors, whereas lead time reduction is the dependent variable. Primary data was gathered for the study using a questionnaire filled out by the managerial levels of apparel companies. The sample adequacy of the study is 0.760, and the variables' reliability according to Cronbach's Alpha is 0.872. The R Square (R^2) value is 0.538, indicating that the independent variables influence the dependent variable by 53.8 percent. The independent factors are completely recognized to influence the dependent variable based on the ANOVA significant value. Outsourcing and lead time are influenced by elements such as outsourcing risk, cost, technological efficiency, quality improvements, productivity, and customer satisfaction. According to the findings, outsourcing and lead time have a beneficial association. With the support of the research data, it can be concluded that outsourcing has a beneficial impact on garment product lead times, and that shorter lead times boost organizational and industry performance.

Keywords: Outsourcing, Lead time, Garment, Performance, Supply Chain.

An Investigation of Sri Lankan Airline Service Quality and Passenger Satisfaction

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Abstract

This study investigate the Service quality factors that influence Passenger Satisfaction of Sri Lankan Airlines. This study mainly focuses on determining the influence of Tangibility, Reliability, Responsiveness, Assurance and Empathy and demographics of the Passengers using Sri Lankan Airlines. The research questionnaire was developed to get Primary data for each objective. The researcher also has referred secondary data sources to dig deeper into the research area. A number of 230 responses were taken by convenient sampling by distribution of the questionnaire survey. The responses were collected online, and the analysis was done by taking them to one database. According to this study, tangibility and empathy were identified as the factors with high significance, hence it can be concluded that tangibility and empathy are the most critical and influential factors that contribute to passenger satisfaction with Sri Lankan Airlines Service.

Keywords: Passenger Satisfaction, Airline Service Quality, SERVQUAL model

The Impact of Port Logistics Service on Quality Management of Less than Container Load (LCL) Cargo Operations

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Abstract

This study intends to assess five factors of port logistics service and examine the quality management of LCL cargo with reference to the logistics division of the port of Colombo. The research begins with a survey of the literature on port logistics service and quality management of LCL cargo in both local and international contexts. Second, the researcher has done both quantitative and qualitative analysis tools, including discussions and face to face interviews with the relevant personals and 209 wharf clerks from companies that have used the port logistics services offered by Colombo port in Sri Lanka. Ultimately, the reliability analysis, Pearson's correlation, descriptive analysis, and linear regression analysis are used to examine survey data using structural equations. Five elements, including resources, capabilities, processes, management, and image and social responsibility, positively influence port logistics service quality, according to the findings. In addition, a model was created based on the identified port logistics service factors using linear regression analysis. Notably, the management and skills of port logistics service appear to improve the quality of LCL cargo management.

Keywords: Port Logistics Service, Quality Management, Less than Container Load Cargo, Wharf Clerk

Identifying the Determinants of Passenger Perception on "Park & Ride City Bus Project", as a Service Quality Improvement in Bus Transport in Colombo Metropolitan Area

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Abstract

This study explores the determinants of passenger perception on service quality of "Park & Ride City bus Project". The conceptual framework was structured based on the hierarchical model of Brady & Cronin, (2001). This study mainly focuses on determining the influence of interaction quality, environmental quality, and outcome quality on the service quality of "Park & Ride City bus Project" and focuses on the impact of demographic factors on the service quality determination of the park & ride city bus service. The research questionnaire was developed to collect primary data for above objective. The survey was conducted with a sample size of 250 passengers and 251 responds were collected, with 196 usable responses. Removing outliers, 180 responds have been used for the analysis. The responses were collected online, and hard copies of the questionnaire were also distributed to collect primary data. The author has found that each interaction quality, environmental quality, and outcome quality has a relationship with the service quality of "Park & Ride City bus Project". Further, the researcher has concluded that interaction quality does not influence individually on the service quality while environmental quality and outcome quality have an influence on the service quality which have been resulted under regression analysis. Recommendations to enhance the interaction quality, the environmental quality and the outcome quality have been provided in the study. Further, it is recommended to improve service quality through adding modern luxury buses, pick up people according to the seat amount, increase the bus frequency, improve online payment platform, apply taxation scheme for private vehicles in the Colombo metropolitan area where the park and ride facility is available.

Keywords: Consumer buying behavior, Eco-friendly vehicles, Green consumerism, Purchase intention, Theory of planned behavior

Factors Affecting to Passenger's Willingness to Use Light Rail Transit System in Sri Lanka

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Abstract

The primary purpose of this study is to determine whether or if passengers in Sri Lanka are willing to utilize a system similar to this one and to identify the services that passengers anticipate receiving from a system of this kind. Observing the findings of previous research carried out in other countries, the factors that were able to determine the influence of passengers' willingness to use light rail transit systems. These researchers identified punctuality, communication, the ability to experience comfort, connectivity, accessibility, reliability, responsiveness, assurance, empathy, and tangibles as the primary services that passengers anticipate receiving from light rail transit systems. In order to collect information from passengers, the survey was administered as an online questionnaire through a Google form. After the data was collected, they were analyzed using descriptive statistics, co-relation and regression analysis, diagnostic test, independent sample T-test, and one-way analysis of variance to answer the study questions. First, researchers employed descriptive statistics to assess individual variables and light rail transportation system willingness. Considering standard deviations, passengers expect connectivity from light rail transit. Co-relation and regression analysis were utilized to solve the second study question. Using co-relation, researchers investigated the association between individual components and willingness to use light rail transit, and all variables positively and jointly correlated with willingness. Multiple regression model tests individual factor effects. According to the research, connection affects the willingness to utilize light rail individually and other aspects affect the system together.

Keywords: Light Rail Transit System, Passengers' Willingness

Analyzing the Factors Affecting in Modeling of Bandaranaike International Airport as a Passenger Hub in the South Asian Region

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Abstract

The vitality of the aviation industry cannot be compromised in an island nation like Sri Lanka where the international connections majorly rely on either maritime or aviation. The superiorities and the fluctuations that occur with regards to the travel and tourist patterns have majorly tended to expire the existing facilities and infrastructures at Bandaranaike International Airport. This study predominantly aims to determine the factors affecting in modeling of Bandaranaike International Airport (BIA) to position it as one of the main passenger hubs in the south Asian region were followed by that it is derived to specify the barriers exist within the country in modeling BIA as a passenger hub. The research incorporated both primary and secondary data sources. A survey with a sample size of 326 was undertaken using convenient sampling approach, and the data were analyzed using a correlation and regression analysis model, factor analysis, and descriptive analysis. In addition, the combined opinions of three industry experts were gathered to further determine the factors. The demonstrated analysis illustrated as per the modeled regression formula predicts the dependent variable can be developed if the Aviation authorities flourish in the spheres of facilities and services, entertainment and sustainability, and Terminal configuration whilst sustaining the sanitary and quarantine facilities so that it would transform as an astonishing passenger hub which possesses an immense competition to other regional hubs. Moreover, the involvement of artificial intelligence in various terminal activities and the modernization of employee perceptions would essentially aid in attracting more business to the BIA airport by distinguishing the differences between the market segments and implementing air services to enhance connectivity.

Keywords: Market segments, Affiliation, Low-cost carriers, Artificial Intelligence, Terminal Configuration, Connectivity, Airlines

Analysis of Factors Affecting Customer Satisfaction on Service Quality of Parcel Delivery Service in Sri Lanka Post

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Abstract

Parcel delivery service plays a vital role in the modern supply chain, as an important element in the production and distribution of goods and services. Sri Lanka Post is the only public organization that operates a parcel delivery service. However, currently more and more people shift towards private courier services from Sri Lanka Post. Therefore, this research sought to find the most critical factor affecting the service quality, the impact of service quality on customer satisfaction of parcel delivery service in Sri Lanka Post, recommendations, and suggestions to improve the service quality of parcel delivery service in Sri Lanka Post. The study used the SERVQUAL model to test the service quality. The researcher used five dimensions to represent the quality of service namely assurance, empathy, reliability, responsiveness, and tangibility. Customer satisfaction is very important for the success or survival of any business and the quality of specific services has a significant effect on customer satisfaction. This study used qualitative research method. Data collected from 330 respondents through questionnaires and statistical information was processed with SPSS software. Demographic factor analysis, One-Way Anova, reliability analysis, and correlation analysis were done. Based on the developed regression model, assurance, empathy, reliability, responsiveness, and tangibility have a positive influence on customer satisfaction on service quality of parcel delivery service in Sri Lanka post. Recommendations that are provided in the final part of the research concentrate on improving the service quality of parcel delivery service in Sri Lanka and the core recommendations of this study are to introduce a mobile app with a tracing system and notification system while digitalizing the postal department and to introduce Door-Step parcel pickup service.

Keywords: Customer satisfaction, Service quality, Parcel delivery service, Sri Lanka post

Analysis of Passenger Perception on Improving Service Quality of Public Bus Transport Service Using Artificial Intelligence Technology in Colombo, Sri Lanka

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Abstract

Artificial intelligence is a wide area of computer science in which machines function like human mind. AI is accomplished by learning the patterns of the human brain by analyzing the process. Hence, Artificial intelligence is a prominent technology that can overcome several issues. One of the biggest challenges is public bus transportation. In the Sri Lankan context, there is a lack of service quality, trustworthy information sharing, online tracking, and poor bus schedules. On the other hand, passengers want a bus schedule that will make them satisfied with public transportation. A thorough understanding of the relationships between AI, data, and transportation system characteristics interprets successful AI applications. The main objectives of this study are to identify passenger perception determinants that affect the applicability of artificial intelligence technology to improve the service quality of public bus transportation and the impact of these determinants to improve the service quality of public bus transportation and to identify key issue areas of public bus transportation and identifying most appropriate area which AI should apply for enhancing service quality. The study was mainly designed with a mixture of both qualitative and quantitative approaches and the study was conducted by referring to convenience sampling technique and getting responses from 318 samples. Through factor analysis and regression analysis, the author has found six factors Service Quality, AI Optimization, Sustainability, Cost, Resources, and AI Co-technologies. According to the regression coefficients, except service quality and Sustainability other four factors shows a positive impact on the perception of AI-based transportation systems. The research shows the key areas of AI that should be applied to enhance service quality and suggests two approaches to building an AI algorithm for optimal allocation of buses and planning the bus schedules dynamically in the required way and potential of developing such a system.

Keywords: Artificial intelligence, Optimization, Algorithm

A Study on Simplifying the Warehouse Operations Using RFID Technology in Textile and Apparel Industry of Sri Lanka

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Abstract

Apparel industry plays a major role in Sri Lanka's economy as a major export commodity. It also being one of the fastest growing industries in the world. Due to these facts, the apparel industry in Sri Lanka possesses with a very complex supply chain. Apparel industry in Sri Lanka has a global supply chain. Logistics is a part of supply chain activities and warehousing is one activity of logistics activities. Therefore, when warehouse process is simplified, a part of supply chain too gets simplified. Warehousing includes several key activities namely receiving, storing, picking and sorting, packing and dispatching. It can be identified that these processes can be conducted using ERP system, manpower and use of barcode scanners.

Throughout this study, it is discussed with the aid of results of the questionnaire, how RFID technology can be used as a strategic tool in simplifying warehouse processes in apparel industry in Sri Lanka.

Keywords: RFID Technology, Warehousing, Apparel industry

Analyzing the Service Quality of the Mobile Applications-Based Passenger Transport in the Colombo District

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Abstract

A strong transport system becomes the backbone of a country as it contributes to the development of the nation in many aspects. Without a proper transport system there is no point in moving goods and passengers among destinations. Especially, the passengers demand, transport modes to fulfill their day today mobility needs. Further the contemporary world is dealing with more technologically improved aspects rather than using conventional methods, as it helps people to make their busy lives more convenient. At the point where the technology and the transport combined it provides digital mobility solutions for the passengers like demanding rides using mobile applications. Since the mobile applications-based passenger transport (MABPT) has become a blooming trend in Sri Lanka, this research attempts to accomplish the objective of analyzing the service quality of MABPT within Colombo district. The reason behind the targeted population is that Colombo district creates a high amount of trip attraction and distribution. The identified problem behind the study was there is an empirical gap in measuring the service quality of MABPT and the testability of this concept is lacking in Sri Lanka. To analyze the data there were 35 sub variables identified by referring to SERVQUAL and E SERVQUAL models. The study is quantitative in nature. In the direction of data collecting a questionnaire was distributed using electronic sources and collected 396 responses as the sample, to analyze the data under the convenient sampling method. To achieve the objectives of the study several tests were conducted using version 21 of the SPSS software. Gradually it was found that fulfillment, privacy, assurance, responsiveness, and reliability as factors affect the service quality of MABPT and those are having positive relationships. Finally, the researcher identifies some areas that needed to be forced on to enhance the quality of the MABPT.

Keywords: Service Quality, Mobile Application Based Passenger Transport (MABPT), SERVQUAL

The Impact of Lean Warehouse Practices on Warehouse Efficiency (A Case study on MAS Intimates Factories, Sri Lanka)

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Abstract

This study explores the impact of lean warehouse practices on warehouse efficiency with respect to MAS Intimates factories in Sri Lanka. The conceptual framework structured based on the theoretical model of lean warehousing and 5 potential influential factors were explored in this study. This study mainly focuses on determining the impact of Waste control, Flow management, quality assurance, and Human Resource Management and Continuous improvement on maximizing warehouse efficiency. The research questionnaire was developed in order to get primary data for each objective. Secondary data sources are also used to dig deeper into the research area. Fifty- four responses were taken using stratified random sampling by distribution of online survey to MAS Intimates warehouses and the analysis was done by using SPSS software. This study has found that continuous improvement has the highest positive impact on warehouse efficiency among other lean warehouse practices in the model while waste control, flow management and human resource management also have a positive impact. Further, the study identified that quality assurance has a negative impact on maximizing warehouse efficiency of MAS Intimates warehouses. According to study results, it is recommended to give priority to continuous improvement within the warehouse and maintain training sessions to communicate and educate employees about lean warehousing and its benefits. Further, in order to minimize the negative impact of quality assurance on efficiency, this study suggests to go for PDCA cycle (Plan-Do-Check-Act cycle) and encourage employees to eliminate mis- picks at the beginning rather than going for continuous quality inspections.

Keywords: Flow management, Human Resource Management, Lean warehousing, Quality Assurance, Warehouse efficiency

A Study on Sri Lankan B2C E -Consumers' Choice Intentions on Sustainable Last-Mile Delivery

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Abstract

The upsurge of the e-commerce industry has stemmed from a considerable rise in the number of Last-mile deliveries since clients are able to purchase minor purchases from various websites, resulting in greater vehicle movement and CO_2 emissions also thrives particularly during pandemics like the current Covid-19. The study has focused on B2C e-consumers in Homagama South, Colombo area. The primary objective of the study was to identify determinants that affect Sri Lankan B2C e -consumers' choice intentions on sustainable last-mile delivery and it consists of three secondary objectives; to identify the impact of the determinants of Sri Lankan B2C e -consumers' choice intentions on sustainable last-mile delivery; suggest and recommend improvements for last-mile delivery services and identify how the demographic factors affect choice intentions on sustainable last-mile delivery if they are offered. A sample size of 294 residents of Homagama South, Colombo, Sri Lanka ages ranging from 15-35 years was selected. However, with the exceeded survey participation,318 responses were used for the analysis purposes. Low Delivery charge, Delivery Speed, Environmental knowledge, Availability of environmental information, Environmental consciousness, Perceived Environmental Responsibility and Social Influence were identified as the determinants that affect the choice intention of the e-consumers on sustainable last-mile delivery. Correlation analysis was carried out to find out whether the determinants that affect the choice intention of the e-consumers on sustainable last-mile delivery have an association with the choice intention. Through the regression analysis, it was found that the Low Delivery charge, Availability of Environmental Information and Perceived Environmental Responsibility influence the choice intention positively while Environmental Knowledge influence the choice intention negatively. The findings of the study could be utilized by the last-mile delivery service providers when reshaping their business in the future with the goal of greening the last mile.

Keywords: B2C E-Consumers, Choice Intention, E-Commerce, Sustainable Last-Mile Delivery

Inclusivity of Machine Learning and Neural Network Application to Optimize Appraisal Process: Investment Proposal Application Perspectives

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Abstract

A foreign direct investment (FDI) is a very popular method of investing overseas and is a business decision to acquire a substantial stake in a foreign business or to buy it outright as to expand its operations to a new region. The investment appraisal in some countries including Sri Lanka predominantly uses human intervention in the appraisal process on individual case basis leading to extensive delays, high cost, and inconveniences to the investors. As a result, countries lose very lucrative investment opportunities. This research focuses on minimizing cost and maximizing throughput and efficiency using process optimization through strategic inclusivity of machine learning (ML) and neural network (NN). It aims to develop a mechanism that will enhance the efficiency and effectiveness of proposal appraisal process of foreign direct investment through extensive use of ML and NN Application minimizing the human intervention in decision making process. A mixed mode research has been carried out combining questionnaire survey, desk research due to a multitude of practical use cases of the scenario. The study identifies five important factors crucial when identifying the most beneficial investment to the host country namely, i) global presence of the applicant, ii) infrastructure benefits from the project, iii) contribution to local economy, iv) human resource competence, and v) advantages from the specific industry. The study recommends (i) implementing of BNNMAS Model for Stock Price Prediction; (ii) NN forecasting model; (iii) ANN model on daily mean ambient temperature; (iv) dengue forecast model using ML; (v) Building prognostic models for prostate cancer recurrence(ML); and (vi) rainfall forecasting model(ML). The proposed strategic inclusivity of ML and NN to Optimize FDI proposal appraisal process would eliminate extensive delays and escalating cost in the present manual system benefiting investors as well as hosting countries.

Keywords: foreign direct investment, machine learning, neural network, optimization

Determining the Factors Affecting Passengers' Satisfaction on Park and Ride City Bus Service from Makumbura to Colombo as Public Transportation; Based on C001, C002 Bus Routes

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Abstract

Park and Ride City Bus concept in Sri Lanka was launched in the first quarter of the year 2021 with the aim of transforming Sri Lankan bus transportation into a modern developed strategic sector. The first phase of this concept was inaugurated at the Makumbura Multimodal Transportation Centre (MMC) where City Buses are mainly originating. The study has focused on Park and Ride City Bus passengers who're using C001 and C002 bus routes which mostly covers the sub-area of Colombo by 138 main bus route and 174 main bus routes. The primary objective of the study was to identify determinants that affect passenger satisfaction and it consists of three secondary objectives; to identify how the significant Demographic factors affect passenger satisfaction on service quality in P&R City Bus service, to identify the relationship between factors affecting passenger satisfaction and passenger satisfaction of the City Bus service, to suggest the future improvements for the Park and Ride City Bus services. A sample size of 309 average daily passengers who're using C001 and C002 routes are taken into consideration. However, only 300 responses were used for the analysis purposes while nine responses are disregarded. Service Provided, Comfort, P&R Fare System, Scheduled Timings, Terminal Environment, Accessibility, and Availability of Facilities were identified as the major determinants that affect the P&R City Bus passenger satisfaction Spearmen Correlation analysis was carried out to find out whether the determinants that affect P&R City Bus passengers' satisfaction have an association with the passenger satisfaction. And the recommendations that are provided in the final part of the research concentrate on improving the service quality of public City Bus transportation in order to reshape Sri Lankan public bus transportation.

Keywords: Park & Ride, City Bus, Public Bus Transportation, Passenger Satisfaction

A Study on the Influence of Artificial Intelligence to Warehouse Performance

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Abstract

Artificial intelligence has become a trend in every field where it will make human work easier. Warehousing is an important aspect of logistics and transportation because it aids in the storage, packing, sorting, and delivery of goods. Every business has a warehouse or a location where their stock is kept in order to maintain the value and presence of the goods. This study is focused on the influence that artificial intelligence can bring into warehouse performance. A sample of 329 workers from selected warehouses was used to this study and a self-administered questionnaire was used to collect data. To measure the influence into warehouse performance, an index was constructed using the Principal Component Analysis (PCA) method. Mann Whitney U test and Kruskal-Wallis H test were used to determine the effect of demographic factors on warehouse performance. The association among the variables were identified by employing correlation analysis. A regression analysis was performed to determine the relationship between the identified factors along with warehouse performance. When the study tests for the association among the variables, it depicts the existence of a positive correlation. Finally, on the basis of the analysis it illustrates that there is an influence of the variables machine learning, robotics, internet of things (IOT) and fuzzy logic to warehouse performance where the warehouse performance was mentioned in three categories as time, inventory and cost.

Keywords: Artificial intelligence, warehouse performance, Machine learning, Robotics, Internet of things, Fuzzy logic

Impact of Factors Affecting Customer Perception on Park and Ride Concept in Sri Lanka

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Abstract

Park and ride is a well-known concept used by most developed countries to mitigate traffic congestion. This concept was once introduced but was unsuccessful and was again implemented in 2021 at Kottawa. When implementing new concepts, the respected authorities must make sure the public is aware about this, what factors will affect the passenger's perception for this concept and their impact and the willingness of people to use it. The main focus of this study is to find the above-mentioned objectives. To carry on the mission, convenient sampling method was used and a constructed questionnaire was distributed among people who are travelling daily to Colombo for work and analysis was done using 153 responses. Frequency analysis with cross tabulation was used to find the awareness and willingness to park and ride concept. The study confirmed that a majority was aware about this concept and most of the respondents were willing to use this concept. Using past literature, the researcher identified 7 factors that affects the customer perception on park and ride as reliability, responsiveness, accessibility, communication, service quality, security, and personal characteristics. Using the correlation analysis, the researcher has found that accessibility, communication, service quality and security have moderate relationship with customer perception on park and ride while the rest have a strong relationship with the dependent variable. Using multiple regression, the researcher found out that there is a significant positive relationship between reliability and responsiveness with the dependent variable.

Keywords: Customer perception, Park and ride, Awareness, Willingness

Feasibility Analysis to Implement RFID Technology in Sri Lankan Warehousing Sector

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Abstract

This is an academic study on a Radio Frequency Identification System that has been developed for logistic industries in Sri Lanka. In comparison to Sri Lanka, which is still in its early stages, the technology is widely employed in industrialized countries in the logistical industry. The industry's responses to difficulties in the warehousing sector of the supply chain were gathered and analyzed, and the responses were then analyzed on how a technology which including RFID may alleviate those problems. The information was gathered with questionnaires, which were distributed to industry professionals. There were 183 answers, and more data was acquired through literature and interviews. The data were gathered from warehouse management organizations. It was classified as one of the research objectives. The study examines the current state of RFID technology in Sri Lanka and compares it to that of industrialized countries. Eventhough tracking systems have strong security requirements nowadays, the security situation in Sri Lanka has evolved, and the rules and limits on monitoring technology such as RFID have piqued the curiosity of the business world. The survey highlighted the most pressing concerns in the warehousing industry. If a company intends to use RFID technologies, this might help to mitigate the consequences of these concerns. Following that, the areas that will benefit the most are identified. Finally, if an organization intends to implement RFID, this study will identify the requirements.

Keywords: RFID technology, Warehousing, Feasibility, Tracking system

Investigating the Impact of Logistics Services towards Customer Satisfaction in B2C E-Commerce Platform: A Study Based on Sri Lankan E-Shoppers

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Abstract

E-commerce is the process of buying and selling of goods and services over an electronic network, most notably the internet. E-commerce logistics plays a hand-in-hand role within the e-commerce platform by safeguarding the smooth running of the process while resulting in higher customer satisfaction throughout the entire online shopping experience. E-commerce logistics, often known as e-logistics, are the logistics of online sales which establish unique processes to respond to a certain flow management. This research study is conducted mainly focusing on the Business to Consumer (B2C) market segment with the aim of investigating, how the presence of logistics services within the aforesaid e-commerce platform would yield to impact on the customer satisfaction of e-shoppers. Thereby, throughout the study, the researcher had discussed the influence of the presence of four main logistics services namely inventory management services, order fulfilment services, reverse logistics services, and customer services on the e-shoppers customer satisfaction with the support of 310 usable responses of potential Sri Lankan e-shoppers in Malabe North area. In fulfilment of the objectives, the researcher was able to identify all four independent variables, including inventory management services, order fulfilment services, reverse logistics services, and customer services, as significant factors which positively influence e-shopper's satisfaction in the Sri Lankan B2C e-commerce platform. Inventory management services were identified as the most influential logistics service category, while customer services, order fulfilment services and reverse logistics services affect customer satisfaction in succeeding order. Furthermore, the researcher was able to identify six specific gaps in logistics services with regard to Delivery concerns, Product returns management and refund procedures, Product information and specifications, Shipping costs, Shipment tracking options, Product packaging and labelling in the Sri Lankan B2C e-commerce platform and made recommendations to bridge the gaps while also identifying areas for further research based on the limitations encountered throughout the study.

Keywords: E-commerce, Inventory management, Order fulfilment, Reverse logistics, Customer service

Analysis of The Satisfaction of Commuters on The Three-Wheeler Transportation Service Quality in Gampaha City Limits

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Abstract

The inability and non-availability of sufficient public transport services to fulfil travel needs of the passengers, led to use three-wheelers as an alternative and common transport mode in urban and rural areas in Sri Lanka. Though the three-wheeler transport has become a widespread and social phenomenon, the service quality of three-wheeler transport mode is unsatisfactory and lies at an average level especially in urban areas like Gampaha city. Hence, the study focused on analysing the satisfaction of commuters on the three-wheeler transportation service quality in Gampaha city limits. The researcher established three main objectives as, identify the factors affecting the satisfaction of commuters on the three-wheeler transportation service quality in Gampaha city limits, determine the level of impact on the commuter satisfaction and determine the most used and most satisfied three-wheeler transport service among conventional and mobile app-based three-wheeler transportation service in Gampaha city limits. In the conceptual framework, sixteen service quality attributes were explored. The required data for this study was collected though distribution of a questionnaire among the target population. The sample size of this study was 384 respondents and non-probabilistic convenient sampling were taken as the sampling technique. The statistical data was processed with SPSS 19.0 software and Microsoft Excel. The gathered demographic data were analysed though descriptive analysis. The first objective of this study was achieved mainly through the factor analysis. By utilizing factor analysis along with scree plot and rotated component matrix, initial sixteen factors were reduced to main four components namely; Service Performance, Tangibility, Passenger's Safety and Empathy. The second objective was accomplished through correlation analysis and multiple regression analysis and one way ANOVA and Tukey's post hoc tests were used to achieve the third objective in this study. Based on all statistical tools and techniques, it can be summarized that the service performance factor has the highest impact while tangibility factor has the least impact on the commuter satisfaction out of all four identified factors. Finally, the researcher developed a best-fitted multiple regression model and summarized all research findings accordingly. At the end of the study, recommendations were provided to improve the service quality of three-wheeler transportation in near future.

Keywords: Three-wheeler transportation, Commuter Satisfaction, Service quality, Gampaha city limits

Passenger Satisfaction on Mobile App-Based Taxi Services Due to Covid-19 Situation within Kaluthara District

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Abstract

The COVID - 19 pandemic affected almost every industry in the world, including transportation. The app-based taxi industry was severely impacted globally due to the virus's spread, which caused people to stop commuting. Many studies have been conducted internationally to determine what factors are influencing passenger satisfaction with regard to the COVID pandemic, but there is little research done locally in this area. This study aims to identify the factors influencing passenger satisfaction with app-based taxi services due to COVID-19 in the Kalutara district of Sri Lanka. To measure satisfaction in this study, three factors are considered: precautions taken inside the vehicle, precautions taken outside the vehicle, and precautions taken by the driver. A questioner survey is used to collect data. According to the correlation analysis, all three variables chosen are statistically significant and have a relationship with passenger satisfaction. When considering individual variables, passengers are most concerned about the regular cleaning of the vehicle after each trip. The type of mask worn by the driver and the type of vehicle used as a taxi are two other factors that influence passenger satisfaction.

Keywords: COVID-19, Passenger satisfaction, App-based taxi services

Analysis of Factors Affecting the Passenger Satisfaction with the Quality of Service in Public Bus Transport in Sri Lanka

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Abstract

A shared mode of transportation employed by the general public is referred to as the Public Transportation Service (PTS). Bus services in Sri Lanka are the most prevalent type of public transportation. The inconsistencies in the quality of service offered by bus service have led passengers to move towards privately owned automobiles. The purpose of this study is to investigate the factors that affect passenger satisfaction on service quality in public bus transportation services and to attempt to identify the necessary actions and improvements to raise the level of passenger satisfaction towards public transportation services. The research is carried out to examine the factors that affect passenger satisfaction on service quality in public bus transportation services. Empirical research on a variety of characteristics indicating the service quality in public transportation was carried out by the authors using a sample population of 388 individuals who regularly utilize public transportation. The SERVQUAL model is analyzed in this study to provide an explanation of passenger satisfaction. The findings indicates that all the defined service quality elements, except the tangible's aspect, contribute to passenger satisfaction with public transportation. The research offers empirical evidence of the elements that determine passenger satisfaction on service quality in Sri Lankan public transportation. The findings might help public transportation service providers to close the quality gap that exists between the expected level of service and the actual level of service. It will also be valuable to economists, law enforcement agencies, and policy makers to formulate and execute new policies and plans for the ongoing growth of the public transport service. A study highlights the benefits of public transportation and the significance of making improvements to it for the economic growth of the nation.

Keywords: Passenger satisfaction, Public Transportation Service, SERVQUAL model

Analyzing the Effect of COVID 19 Pandemic towards Public Transportation and Passenger Satisfaction in Kegalle Area

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Abstract

COVID-19 has been linked to a drop in public transportation ridership in numerous places. However, the pandemic's influence on passenger impressions of public transportation, notably satisfaction, has largely gone unstudied. This research examines the influence of COVID-19 on passenger satisfaction using a case study of Kegalle transportation system in Sri Lanka. As a result, the purpose of this study is to investigate the influence of COVID-19 on travel behavior in Kegalle through public transportation. This case was investigated using a quantitative research approach and data was collected via online surveys (353) and face-to-face approach (31) with the total respondents' count of 384. Statistical data was examined using Demographic factor analysis, Cross Tabulation Analysis, Factor categorizing, Chi Square Test, Reliability Analysis, Ordinal Logistic Regression Model, and Kruskal Wallis test with hypothesis using SPSS software. The study discovered a significant decrease in travel frequency, distance, and public transportation mode share after the effect of pandemic. Furthermore, the findings revealed that demographic parameters such as age, income, private vehicle ownership, and work type had a substantial effect on those changes. The study analyzed the factors influencing the passenger satisfaction such as Fare of public transportation, quality of public transportation, passenger expectations, monthly income, owning a private vehicle, frequency of using private transport and frequency of using public transport. The results demonstrate that views of Quality of Transportation and the Passenger Expectation have a significant influence towards the public transport satisfaction, with Transportation Fares and other factors such as monthly income and ownership vehicles being less successful in effecting individuals' satisfaction towards public transport. The findings identify feasible areas for improving the performance of public transportation services to increase satisfaction within Kegalle among other private vehicle owners and enables further research areas in this context.

Keywords: Passenger Satisfaction, Quality of Public Transport, Passenger Expectation, Fare of Transport, Monthly Income

The Analysis of Organizational Influence on Enterprise Resource Planning Implementation Success in Apparel Manufacturing Industry (Biyagama-Sri Lanka)

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Abstract

The study ascends on the objective of analyzing the impact of organizational dimensions in achieving ERP implementation success with the Sri Lankan apparel manufacturing industry. The conceptual framework was structured based upon the organizational dimensions and three major dimensions which is information technological dimension, supply chain process related dimension and outcome related dimensions. The study mainly focuses on ERP system success factors of system quality, information quality, individual impact, operational process, behavioral process, planning and controlling process, financial performance perspective and sales and marketing performance perspective. The research questionnaire was developed in order to achieve the primary data required as well as secondary data was obtained through analyzing research articles and internet-based web pages. 225 responses were taken with the use of convenient sampling method with the online questionnaire distribution. The responses were collected online and the analysis was done by taking them to one database. Analyze the impact of organizational dimensions in achieving ERP implementation success with the Sri Lankan apparel manufacturing industry. The researcher has found that information quality, individual impact, planning and controlling and sales and marketing performance perspective has an impact on ERP system implementation success where the other mentioned variables were insignificant to the study. Recommendations such as further improvement of the success factors are identified with the study for future research of the study.

Keywords: Enterprise Resource Planning, Information and Technological Dimension, Outcome, Related Dimension, Supply Chain Process Dimension

Determinants of Logistics Services Quality when Selecting Freight Forwarding Company in Sri Lanka

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Abstract

The Freight forwarding industry is a major supporter for developing counties such as Sri Lanka in controlling cash flow and bringing foreign exchange into the country. Due to the huge competition in freight forwarding industry when a customer selecting a freight forwarding company to satisfy their requirements, they consider logistic service quality as an important factor. Accordingly, this study mainly focuses on the choosing right freight forwarding company based on the requirement of each customer. This study was conducted to identify the relationship between logistic service quality factors, price, reliability, responsiveness, empathy, and safety with customer satisfaction. The study is based on the quantitative research method and used the simple random sampling method. Data was collected from 351 exporters in Sri Lanka. The data acquired through questionnaires is analyzed using frequency analysis, descriptive analysis, factor analysis, Pearson correlations and regression analysis. According to the finding of correlation analysis, there is a strong positive relationship between logistic service quality factors and customer satisfaction. The result of multiple liner regression shown that independent variables; reliability and responsiveness, empathy, reasonable price, safety of the shipment have a significant impact on customer satisfaction. Through the analysis the study concludes that, customer select the right freight forwarding company based on the factors mentioned above, for which they can be satisfied with.

Keywords: Customer Satisfaction, Freight Forwarding, Logistic Service Quality

Factors Affecting to Customer Purchasing Decision on Bunker Requirement at Port of Colombo

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Abstract

Sri Lanka is a one of the best located countries which is located in the shipping trade route from west to east. Bunkering industry is a dynamic sector in present Sri Lanka and sometimes, should have to struggle for attracting the bunker customers to Sri Lankan ports. In this context, this research target is to identify the factors affecting bunker customer purchasing decision on bunkering at port of Colombo. In here reviewed literature focused conceptualized model for a competitive bunker industry. The six independent variables of the study are fuel price, geographical location, other service availability, outside port limit (OPL) deliveries, product quality and service quality. The study is based on the Colombo port of Sri Lanka, which has a major attraction based on the geographical location throughout the year. A sample of 51 bunker customers were drawn using stratify random sampling technique. Primary data was collected by using questionnaire. Descriptive statistic, regression analyses were used to analyze the data with the support of appropriate analysis tools. ANOVA table has been used to test hypothesis of the study. The finding shows that there is a strong positive relationship between both geographical location and customer purchasing decision. Furthermore, this research concluded why bunker customers moved to take bunkers from another location, what are the factors that highly influenced to customer purchasing decision and how strategies can use to improve bunker industry in Sri Lanka. Based on the test results, fuel price, other service availability at port of Colombo, service quality, bunker quality and outside port limit deliveries are the most critical factors, which influence the customer purchasing decision on bunker requirement at port of Colombo.

Keywords: Bunkering, Colombo port, Customer purchasing

Factors Affecting the Inefficiencies in Green Leaves Collection Network in The Tea Small Holding Sector

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Abstract

This study investigates the factors influencing inefficiencies in the tea small holding sector's green leaves collection network in Sabaragamuwa Province. In the tea small holding sector, there are some inefficiencies in the green leaves collection network. As a result, both tea smallholders and tea collectors face numerous challenges. Poor time management, labor and driver shortages, inclement weather, poor road conditions, and so on are some of them. In this research data collected through questioner from tea small holders and tea collectors in Sabaragamuwa province mainly in Eheliyagoda, Kuruwita, Deraniyagala areas. According to the findings of the study, price cuts, storage conditions, packing method, and drivers-laborers have no effect on inefficiencies in the tea small holding sector's green leaves collection network. However, other factors have an impact on inefficiencies in the tea small holding sector's green leaves collection network.

Keywords: Tea small holders, Inefficiencies, Green leaves Collection Network

The Effect of Social Media Marketing on Brand Equity: A Study among Retail Customers in Eastern Province of Sri Lanka

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Abstract

Over the last few years, many companies have integrated social media and social networking sites, into their communication and media plan, leading to a deep transformation of the organizational models and changing the companies' marketing dynamics. This paper reviews the literature on social media marketing and its relationship with brand equity. Scant evidence is available on how social media marketing activities influence brand equity creation and consumers' behavior towards a brand. Despite the popularity of social media, no adequate studies are testing the relationship between social media marketing and brand equity until the last decade, still, the dearth of empirical findings accelerates the scarcity of research in this area. This study brings together the brand management literature and the social media theory in a business context. In doing so, this study offers a new structured model based on the theory that would enhance the knowledge of the relationship between social media marketing and brand equity. Considering the popularity of social media, this research will be limited to leading social networking sites such as Facebook, WhatsApp, LinkedIn, Instagram, and YouTube. This research explores these relationships by analyzing retail customers in the eastern province of Sri Lanka. Based on a survey of 301 retail consumers (only eastern province), who follow social networking sites. the study develops a structural equation model that helps to address gaps in prior social media branding literature. Specifically, the study demonstrates the links between social media marketing efforts and their consequences (brand equity, brand loyalty, and brand image). The study measures brands' social media marketing efforts as a holistic concept that incorporates four aspects (electronic word of mouth, customization, trendiness, and interaction). Descriptive statistics, Correlation analysis, and regression analysis methods were used to analyze the result of this research using SPSS (20.0) statistical software. The results showed that both trendiness and interaction on social media marketing have a significant influence on brand equity while electronic word of mouth and customization has no significant influence. The result also revealed that both trendiness and interaction are the most influencing factors on brand equity in social media. The conclusion and implications of the study are also discussed based on the analysis.

Keywords: Brand equity, social media marketing, retail customers, electronic word of mouth, customization.

Smart Hotel Smart Society 5.0: The era of Robotics

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Abstract

Smart society 5.0 achieves a high degree of conjunction between virtual space and actual space. The world is undergoing rapid upheaval right now. New technologies like IoT (Internet of Things), Robotics, AI (Artificial Intelligence), VR (Virtual Reality), and big data, all of which can influence the course of a society, are still developing in the face of such significant changes in the globe. Study objectives identified as to know the concept of Smart hotels and Smart society 5.0, to determine various smart hotels functioning in India and roles played by these service robots in smart hotels, to determine factors influencing the adoption of service robots, and to identify opportunities and challenges faced by smart hotels in smart society 5.0. This descriptive research achieved the above objective based on the secondary data which was gathered from a variety of research papers, journals, newspaper articles, websites, and various Governments. Based on findings, all activities are becoming accustomed to smart technologies like smart devices, smart homes, smart cities, and smart hotels. Due to a robot's ability like acting as a bellboy in the hotel, walk alongside the guests, provide information about the destination and other hotel-related services, hotel managers and owners are becoming increasingly interested in robots and artificial intelligence as the future of the hospitality sector. AI robots in the hospitality sector have a bright future since they can do tasks with a high degree of accuracy and efficiency, which cuts down on expenses. Service robot adoption has increased across various businesses, particularly since the Covid-19 outbreak, as consumers have grown more concerned about the possibility of contracting an infectious disease through social interactions. Due to the current state of technology and the lack of knowledge regarding the connection between different parts of robotic services and customer happiness, creating such a smart society and smart hotel has both numerous opportunities and obstacles. Therefore, the know the concept of smart hotels and smart society 5.0, the various smart hotels operating in India, as well as the opportunities and challenges faced by these smart hotels in smart society 5.0 - the era of robotics—is the main focus of this research paper.

Keywords: Smart society 5.0, Robotics, Artificial Intelligence (AI), Technology, Smart hotels

Management Education in Digital Age: Issues and Challenges

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Abstract

Indian Business Schools encompasses a long history since its beginning within the 19th century. This paper intends to give an all-round analysis for the existing issues and challenges faced by Management Education in Digital age and thereby give suggestions to overcome them arising from all fronts. This research uses a descriptive analysis methodology to investigate the issues and challenges faced by the management education by using the former literature and other secondary information available. Management education in India is facing crisis with a lot of challenges. The deterioration in the quality of education, the competence level of the graduates who pass out of the business schools, the lack of development among faculty members and the mushroom growth of institutions have brought a downturn in the quality of Business Education. The inappropriate infrastructure facilities, lack of research, engaging part time faculty, recruiting inexperience candidate had worsen the position of management education. There is a necessity to develop a correct mechanism where in fair and transparent 360-degree evaluation of the institutions can be done to push quality education. Experts opine that previous curriculum and teaching methodologies in business schools has not able to keep pace with fluid and dynamic environment. Thus, it needs modification in study material and teaching methodology with time. Reconstruction of management education needs to acknowledge that managers have to be compelled to attend to interpersonal relations, communication, conflicts, feelings, politics and the like. This brings us to the issue that there is a need for managers to connect to a wider set of public duties than that of corporate performance through a liberal education. At the end of the research, it is evident that India's management education needs an Indian Management thought because of its diversity, profound cultural base, collective thinking and possession of pride.

Keywords: Management Education, Digital technologies, Issues and Challenges

Determinants of Ridesharing Intention among Users: Evidence from Colombo District, Sri Lanka

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Abstract

Study aims to identify the determinants of ridesharing intention among users in Colombo District, Sri Lanka. The comprehensive literature review identified attitude, subjective norms, perceived behavioural control and awareness of environmental consequences as independent variables and ridesharing intention as the dependent variable. To achieve the research objective, the researcher used the purposive sampling method to distribute questionnaires to 384 users who have ridesharing intentions in Colombo district. The questionnaire was designed using a five-point Likert scale. Correlation analysis and multiple regression analysis were used to analyze survey data. The results also showed that subjective norms, perceived behavioural control and awareness of environmental consequences have an impact on the ridesharing intention in Colombo district. In contrast, attitude finds to be insignificant in consumers' ridesharing intention in Colombo district. Furthermore, the findings of the study will prove the applicability of the Theory of Planned Behaviour for this investigation of ridesharing intention in the Sri Lankan context. Since there is a paucity of studies conducted on ridesharing as a solution to environmental and economic issues in Sri Lanka, hence this study will help to reveal how identified factors influence consumers' ridesharing intention as a social implication of the study. Furthermore, this study will help the government and other authorities to formulate policies to reduce traffic congestion in Colombo and its suburbs and increase customers' awareness and inclination about ridesharing.

Keywords: Attitudes, Awareness of Environmental Consequences, Perceived Behavioral Control , Ridesharing Intention

The Effect of Big Five Personality Traits on Brand Evangelism: Evidence from Gen Z Smartphone Users in Sri Lanka

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Abstract

The concept of brand evangelism is communicating positive information, ideas, and feelings concerning a specific brand freely and often fervently to others in order to influence consumer behaviour. Brand evangelism marketing creates a fast-growing army of brand evangelists. A brand evangelist act as an unpaid spokesperson on behalf of the brand. There are many factors that affect brand evangelism. Among them, personality traits are one of the most important factors influencing brand evangelism and the behaviour of the brand evangelist. The Big Five model is the primary benchmark for the personality trait theory. Therefore, this research aims to examine the effect of Big Five personality traits on brand evangelism. In order to examine the effect of Big Five personality traits on brand evangelism, researchers gathered evidence from smartphone users in Sri Lanka since the smartphone market is one of the highest levels of total advocacy compared to other industries. Therefore, this study identified the Big Five personality traits: extraversion, openness to experience, neuroticism, agreeableness and conscientiousness as independent variables and brand evangelism as the dependent variable. To achieve the purpose of the study researcher distributed 384 structured questionnaires among Gen Z smartphone users in Sri Lanka. The researcher used the purposive sampling method to collect data. Correlation and multiple regression analysis were utilized to analyze the collected data. The findings of the study revealed that extraversion, openness to experience, agreeableness and consciousness significantly influence brand evangelism among Gen Z smartphone users in Sri Lanka. In contrast, neuroticism does not significantly impact on brand evangelism among Gen Z smartphone users in Sri Lanka. Moreover, it was found that users who have extroverted personalities as crucial advocates of smartphones. Based on the findings of the present study, top management of smartphone companies can identify what personality traits drive customers to become brand evangelists and can formulate and refine strategies for the company's success with its brands.

Keywords: Big Five personality traits, Brand evangelism, Gen Z, Smartphone users

An Investigation of Consumer's Online Shopping Intention Towards Fashion Items
A Study After the Covid-19 Pandemic in Sri Lanka

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Abstract

With the recent growth of the internet and its use in various businesses and the benefits of saving time and decreasing geographic limitations via the internet, most consumers are focusing on using e-commerce to acquire goods and services. When consumers engage in online shopping, they face several issues, including payment security, privacy issues, e-contact accuracy, inaccurate information disclosure, and many more. The COVID-19 epidemic has caused consumers to change their buying behaviour and avoid retail premises. As a result, online sales have skyrocketed. However, after the Covid-19 pandemic, there was a substantial decline in online purchases. Therefore, the purpose of this study is to identify the most common contributing factors to consumers' online shopping intention towards fashion items. This study adopts the UTAUT model and extends it by including two additional variables based on literature, namely innovativeness and anxiety, that give a better understanding of online shopping intention. Consequently, the conceptual model consists of five independent variables, namely performance expectancy, effort expectancy, social influence, anxiety and personal innovativeness, and online shopping intention is the dependent variable of this study. The researcher distributed 384 questionnaires using the purposive sampling method. The researcher analyzed data using multiple regression analysis. The findings of the study revealed that personal innovativeness, social influence, anxiety, performance expectancy, and effort expectancy impact on consumers' online shopping intention towards fashion items. Furthermore, the relationships between online purchase intention with effort expectancy, social influence, anxiety and personal innovativeness are positive, while performance expectancy has a negative impact on consumers' online shopping intention towards fashion items. The findings of this study will help online businessmen and online retail platforms to expand their businesses.

Keywords: Anxiety, Effort expectancy, Fashion items, Online shopping intention

Designing of a Cinnamon Bark Processing Machine

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Abstract

Ceylon Cinnamon is the generic name for the cinnamon product, which has been produced in Sri Lanka for centuries. Due to the unique flavor and quality of its cinnamon, Sri Lanka has historically been the market's leading supplier. As a result, over the years, Sri Lanka has profited greatly from exporting this. It currently controls 80% of the world's cinnamon business and generates LKR 3,000 million in revenue annually. Compared to other industries, the cinnamon industry has seen relatively few development activities even though it contributes to the country's foreign exchange earnings. Several data indicate that the industry has potential for growth. One such method that requires improvement in this sector is the cinnamon rubbing. The procedure takes a long time. Additionally, this is a labor-intensive operation that needs highly skilled staff to complete. As a result, the younger generation is hesitant to work in this field. The entire cinnamon industry has suffered as a result. Additionally, in the manufacture of cinnamon, only crude tools are being employed. Mechanization of processes is thus one of the ways to deal with the problems the sector is currently facing. By adopting a novel rubbing technique, a new cinnamon rubbing apparatus was produced in the current study. A suitable rubbing method has been suggested after careful consideration of the cinnamon rubbing method and other rubbing technologies. To enhance the design, feedback from exporters, engineers working in the cinnamon sector, and cinnamon peelers was gathered. It was found that most of the presented equipment may be operated with very little instruction and knowledge. The study also demonstrated that when the equipment is employed, the safety and effectiveness of the cinnamon rubbing process are greatly boosted. Additionally, it is recommended as future work to design the method for performing scraping and peeling activities.

Keywords: Ceylon Cinnamon, Cinnamon Bark Processing, Rubbing Technique

Analyzing the Impact of Warehouse Management System Uses for Warehouse Operations in 3PLs Warehouses in Sri Lanka

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Abstract

This study explores the impact of Warehouse Management System (WMS) uses on the overall warehouse operation performance in 3PL warehouses in Sri Lanka. The selected areas were Colombo and Gampaha as those areas are the mostly rated commercialized hub due to Colombo Port and Katunayake International Airport. The 12 potential factors were selected after thoroughly studying the pervious literatures related to similar subject. This study mainly focused on the factors time, quality, cost and productivity after the implementation of a WMS and also how all these considered factors affected to the overall warehouse performance. The research questionnaire was developed in order to obtain the Primary data necessary to this research. 281 responds were gathered through online survey using snowball sampling technique and out of the total 271 responds were usable to conduct the research analysis. The employees that already use and interfere with a WMS at their warehouse were considered as usable respondents. The researcher has discovered, factors time, quality and cost are significantly impacting the overall warehouse performance after the WMS implementation, whereas productivity is insignificantly impacting the overall warehouse performance after the implementation. The profitability of the company has also positively impacted after the installation of the WMS according to the analysis conducted by the researcher.

Keywords: Customer Satisfaction, Employees Satisfaction, Overall Warehouse Performance, Profitability, Warehouse Management System (WMS).

The Impact of Reverse Logistics Practices on Sustainable supply Chain Management Performance of Beverage Manufacturing Industry of Sri Lanka

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Abstract

Sustainable Supply Chain Management (SSCM) and better reverse logistics practices are one of the effective ways to achieve the competitive advantage, reliable market reputation and improve performance of the organization. The objective of the study is to identify the impact and investigate the relationship of reverse logistics practices (reuse, recycle, waste management, re-manufacturing) and Sustainable Supply Chain Management Performance (SSCMP) (social, economic, environment) focusing on beverage manufacturing companies in Sri Lanka that are currently doing the reverse logistics practices. An online based questionnaire was distributed for 400 respondents out of which 270 responses been proceed for the analysis. Reliability was analyzed using Cronbach's Alpha and KMO test was done to measure the sample adequacy. Pearson correlation was used to analyze the relationship between reverse logistics practices and SSCMP. As per the correlation analysis, p values of the association between reverse logistics practices and SSCMP is 0.000. which is highly significant. Where there is a positive of coefficient of correlation between independent variables and SSCMP. Regression analysis was used to identify the impact of the independent variables with the dependent variable. The findings of the study support to identify the significant impact and relationship between reverse logistics practices and SSCMP. Finally, this research can conclude that there is a positive and significant relationship between reuse, recycle, waste management and re-manufacturing and SSCMP.

Keywords: Beverage Manufacturing Industry, Competitive Advantage, Organizational Performance, Reverse Logistics, Sustainable Supply Chain Management (SSCM).

Determinants of Financial Leverage: with Special Reference to Listed Manufacturing Firms in Sri Lanka

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Abstract

The study aims to identify the determinants of financial leverage in listed manufacturing firms in Sri Lanka. A quantitative approach was used by selecting twenty manufacturing firms based on the highest market capitalization listed on the Colombo Stock Exchange during the period from 2013 to 2021. The dependent variable was "Financial leverage". Four independent variables were firm size, profitability, assets tangibility, and non-debt tax shield, and the firm age was used as the control variable. This study revealed that the firm size and profitability as significant determinants of financial leverage, having a positive influence. Assets tangibility and firm age showed a negative significant impact on financial leverage. The findings support expanding the existing knowledge on the area of financial leverage and performance as a driver for optimum capital structure decisions and help policymakers to develop strategies on corporate finance to enhance firm value and performance by considering the factors affecting on financial leverage.

Keywords: Financial leverage, Debt Ratio, Firm size, Profitability, Tangibility

Impact of Green HRM Practices on Organizational Sustainability

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Abstract

At present Green HRM has become the most trending HRM concept all over the world. Despite its relevance to managers, few research studies treat the entire HRM process in firms attempting to achieve organizational sustainability as a current evolving trend in the corporate world. As a result, there is a rising need to implement Green HRM in order to ensure HRM's long-term viability. Hence, this study is an effort to understand the impact of Green HRM practices on organizational sustainability. While attempting to answer the research question of "what is the impact of Green HRM practices on organizational sustainability?" the purpose of the study is to determine the effect of Green HRM practices on helping the apparel sector with organizational sustainability. The research is conducted using a cross-sectional survey research design and under the sampling procedure, convenient sampling is used in this study for easy access for data gathering of the questionnaire designed for the study. For this study, a sample of 150 apparel industry managers was chosen. It was used to determine whether or not there is a significant relationship between the four independent variables of green recruitment and selection, green training, green pay and rewards, and green involvement. The findings showed that four Green HRM practices (green recruitment and selection, green training, green pay and rewards, and green involvement) have a positive impact on organizational sustainability. Hence, these initiatives result in greater efficiencies, & lower costs & satisfied engaged employees leading to sustainability in the organizations. It is also worthwhile to understand that this study creates an avenue for future researchers to replicate the model on a larger sample of business graduates, academics, and other practitioners in the fields.

Keywords: Green recruitment and selection, Green training, Green pay and rewards, Green involvement and Organizational sustainability.

Impact of Supply Chain Risk Management Strategies on Supply Chain Resilience
A Study of the Sri Lankan Apparel Industry

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Abstract

Supply Chain Risk Management (SCRM) and Supply Chain Resilience (SCR) are both trending topics in the field of supply chain management nowadays. Both topics require more empirical research. Resilience is a key competency in a world of unprecedented change because even the most cleverly engineered supply chain is vulnerable to unforeseen events. Numerous authors have intended to examine the relationship between supply chain risk mitigation strategies and SCRes. Therefore, it is needed to identify the relationship and the impact of SCRM strategies on SCRes. Hence, the main focus of this study was to determine the impact of SCRM strategies on SCRes. The top-level managers, managers, and executives in apparel manufacturing companies in Sri Lanka, which are the export-oriented manufacturing companies in Sri Lanka, were investigated by using a sample of 203 respondents. A judgmental sampling method is used to select the representative sample. A structured questionnaire was used to collect the data. Correlation analysis and multiple regression analysis were used to test the research hypotheses. The study confirmed that SCRes are significantly correlated with SCRM strategies. Findings from the study indicate that there is a strong positive relationship between SCRes and flexibility, collaboration, visibility, and transparency.

Keywords: Supply chain risk management strategies, Supply chain resilience, Apparel industry

Impact of Diesel Price Hike to the Performance of Container Trucking Companies in Sri Lanka

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Abstract

Trucking industry plays a major role in local logistics as it is the most common transport mode to transport cargo within the local boundary; no inland water ways are used in freight transportation and uses rail transport comparatively less due to lack of connectivity. With the strategic location of Sri Lanka, Sri Lanka is a well-known in the Asian region and thus a gradual logistics development is visible in the country. 45% of the container transport rate is owned by the fuel cost. In the current context of Sri Lanka, diesel price has increased in large values within a shorter period. By conducting this study, it could identify that performance of container trucking companies are dependent on variables such as no. of jobs handled per day, average distance travelled per month, average speed and average truck transport rate. As results, could identified that increase in diesel prices has had a significant negative impact on the performance of container shipping companies by decreasing the no. of jobs handled per day, and thus the average distance travelled per month. Also, could note that fuel efficiency decreases with declining the quality of fuel through factors such as certain level, detergents aggressiveness, emulsifier components, lubricants, corrosion inhibitors and stabilizers and therefore reducing average speed. Challenges in negotiating the container rates with customers, reduction in demand and thus the profits, spending more time in fuel queues, increasing vehicle maintenance costs etc. can be stated as identified main challenges faced by container trucking companies and related parties. The other challenges faced by the container trucking companies in Sri Lanka are time waste on fuel queues, increasing maintenance cost due to reducing the quality of the fuel, lack of spare parts and reducing profits. Throughout this study, how the performance of container trucking companies has been affected from diesel price hike in Sri Lanka is being discussed.

Keywords: Container Transport Rate, Diesel Price Hike, Fuel Cost, Performance of Container Trucking Companies

Impact of Social Media Marketing on Fast Food Purchase Intention Among Generation Y Consumers:
With Special Reference to Western Province in Sri Lanka

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Abstract

Social media marketing is widely recognized as one of the most attractive ways for marketers to reach their consumers effectively and efficiently. In today's contemporary fast-food business world, social media marketing is popular as a communication strategy. Therefore, the purpose of this study is to determine the impact of social media marketing on fast food purchase intention among Generation Y consumers in the Western province of Sri Lanka. This study followed an explanatory research design and a structured questionnaire was used to collect primary data. The sample was selected using the purposive sampling technique and the questionnaire was distributed among 384 Generation Y consumers in the Western province of Sri Lanka, those who use the internet and are familiar with social networking sites such as Facebook, YouTube, Instagram, and have an account in one or more of them. Correlation and multiple linear regression analyses were performed to analyze the survey data. This study revealed a significant positive impact on attitudes towards social media advertising on fast food purchase intention among Generation Y consumers. Furthermore, the researcher found that peer communication has a significant negative impact on fast food purchase intention. Also, it was found that there is no significant impact of electronic word-of-mouth (eWOM) communication on fast food purchase intention among Generation Y consumers. The findings of this study will provide valuable insights to local and multinational fast food retailers and potential fast food retailers in Sri Lanka on how to utilize social media marketing for online promotional activities within their businesses.

Keywords: Fast food, Generation Y Consumers, Purchase Intention, Social Media Marketing

Deterministic MILP-based solution for Global Container Inventory Imbalance Problem

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Abstract

An efficient and effective container inventory management is the key to minimizing the cost of container repositioning (CR) while increasing the service quality of container shipping lines. However, due to the complicated nature of shipping logistics mainly due to shipping being a "derived demand" in economic terms, a simple, straightforward solution could not be found for the ever-increasing CR problem and globally it reflects a USD 20 Billion cost. The study has found an immense possibility of collaboration among shipping service providers. The primary objective of this research is to investigate the aptness of creating a model to solve the container inventory imbalance using an exchange mechanism. Therefore, this paper questions how operations research can contribute to resolving this global problem. The proposed tool contemplates the container size, type, and volume of every member carrier in each port and maps how the deficit and excess quantities could be shared among them and set off the imbalance of empty container reposition at ports of their interest. Based on the optimal solutions being determined through mathematical means, the system proposes exchange options to its users to choose one or more appropriate solutions. As the system makes possible suggestions about the exchange of empty containers, each shipping company could derive multiple benefits in terms of cost savings and quality of services. The tool will facilitate reliable visibility through which more learned decisions would be possible by the shipping line.

Keywords: MILP, Inventory Imbalance, Container-exchange

Analyzing the impact of Green Supply Chain Management Practices on Sustainable Supply Chain Management Performance in Export Textile Industry in Sri Lanka.

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Abstract

The export textile industry is a major contributor to the economy. It is the major direct foreign exchange earning platform that Sri Lankans is currently possessing. Furthermore, supply chain management is affecting the outcome of the export textile industry. However, in the Sri Lankan context research has not been conducted to assess the importance of green supply chain management and its impact on the supply chain performance in the export textile industry. Therefore, the main research question and objective is focusing and try to identify the impact of green supply chain management practices to supply chain management performance in the export textiles industry of Sri Lanka. The research was conducted based on a quantitative approach with the respondents selected based on a convenience sampling technique. Product related green practices, production related green practices, and process related green practices, facilitating green practices and enablers for green practices are key aspects affecting to the supply chain performance in terms of the green supply chain management in the textile industry in Sri Lanka. However, the ultimate research outcome demonstrates that product related green practices, process related green practices, and facilitating factors of green practices had significant coefficient values and higher relationship with the supply chain performance. If there exact way to green practices improve the supply chain performance can be more efficiently. Accordingly, the research recommends the development of certification schemes, creating value for certification in the public eye, and provision of financial and non-financial concessions to the organizations that successfully adapt green practices. Therefore, the proper application of green supply chain management is increasing the performance of the supply chain management in the export textile industry in Sri Lanka.

Keywords: Supply Chain Performance, Sustainable Supply Chain, Green Supply Chain Management, Export Textile Industry.

Tourism Impacts on Socio – Economic Development of Residential Community in Ella Destination, Sri Lanka

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Abstract

One tool for economic development is the tourist sector. For local, regional, and national levels to profit, tourism destination management is required. The local population plays a significant role in the tourism industry since they serve as the tourists' hosts. Tourism must be promoted in order to maximize industrial benefits. Positive outcomes must be enhanced, while negative consequences must be controlled. Therefore, this study aims to identify the economic and socio-cultural impacts of tourism on the residential community in the Ella destination. This research is focused on the homestay community, because it is the main income-generating source for the resident community in Ella, Sri Lanka. The researcher selected 175 registered home stay business owners in Ella destination, Sri Lanka through a simple random sampling strategy. This study applied a Likert scale questionnaire to collect primary quantitative data for this study. Secondary data was gathered from past theses, journal articles, newspaper articles, the SLTDA website, and central bank annual reports. The SPSS software was utilized to analyze the gathered data through questionnaires. The researcher identified that there are eight main indicators that affect the socio-economic development of the home stay business community in Ella, Sri Lanka. These are local culture, local services, community lifestyle, alcoholism, drugs, and prostitution, employment and income opportunities, investment & spending, infrastructure, and tourist arrivals to Ella. As per the findings, the researcher recommends that home-stay tourism business owners need to invest in eco-friendly business operations, because eco-friendly hospitality services are the main trends in the current global tourism and hospitality business sector. Also, home-stay business owners should know that practical knowledge is highly significant in the tourism and hospitality sector business environment. In the future, community capacity development will be needed to manage negative impacts.

Keywords: Tourism Development, Socio-Cultural Impact, Economic Impacts, Local Community

Identification of the Factors Affecting for an Effective Inventory Management System of Perishable Food Items in SPAR Retail Store in Western Province

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Abstract

The study aims to identify the impact of replenishment solutions, warehousing, shelf-life methods, transportation mechanism and information extract system existing at SPAR supermarket chain in the Colombo District of Sri Lanka to have an effective inventory management system within the supermarket. Moreover, the researcher targets on identifying the challenges faced by SPAR in the process of functioning an effective inventory management system. This study contributes for a proper inventory management practice of all the supermarket industry in Sri Lanka. The study consists of quantitative methods where primary data collection was carried out employing a Likert scale questionnaire. The researcher visited all the factories in the sample and done a site visit survey in order to assure the correctness of collected data. The study employed convenience sampling method. The Population of the study is the SPAR supermarkets in the Western Province and as the sample the researcher selected only the SPARs in Colombo District. SPSS version 26 was used for the data analysis. Five independent variables have been identified from previous studies and the researcher has applied those variables to the SPAR supermarket chain in the Colombo District of Sri Lanka. Moreover, the theories developed by local and foreign researchers based on the subject area of perishable items inventory management was discussed with theoretical explanations. The findings have shown that all the five independent variables positively impact to the dependent variable. In the hypothesis testing, it is identified that the replenishment solutions, warehousing mechanism, transportation, and information extract are significant to the effective inventory management. As per the test results generated from the study sample, the coefficient of determination (R^2) is 0.665. This suggests that the study model accounts for around 66.5 percent of the variation in effective inventory management.

Keywords: Effective Inventory Management, Perishable Food Items, SPAR Supermarket, Replenishment solutions, Warehousing

A Study on the Influence of Supply Chain Management Practices on Organizational Performance with a special reference to the International Courier Companies in Sri Lanka

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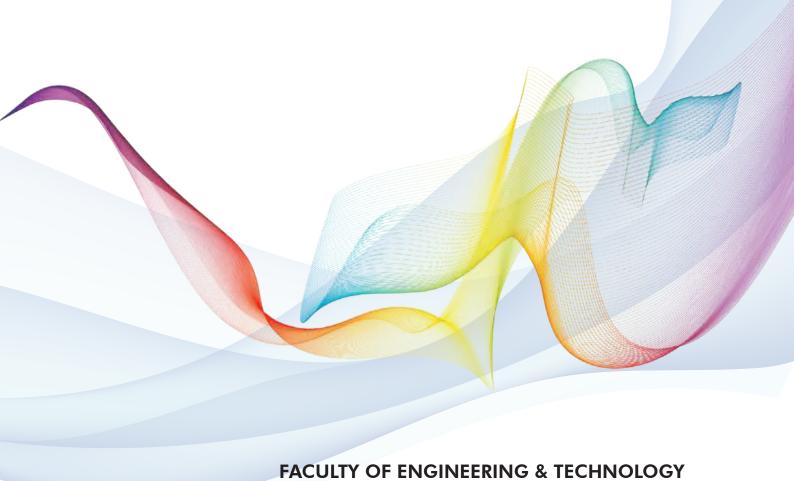
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Abstract

The main primary objective of this study is to investigate the effects of Supply Chain Management practices on the performance of organizations with respect to International Courier Companies in Sri Lanka. The Secondary objective of this study to determine the most significance practice that effected the organizational performance respect to the International Courier Companies in Sri Lanka. The study included quantitative approach, explanatory type, correlational design, convenience sampling and multiple linear regression analysis. The study found that customer relationship, level of information sharing, quality information sharing, and postponement were all significantly affecting the organizational performance except the Strategic Supplier Partnership, extent of outsourcing and Lean practices. Limitations - The Courier Service Industry is an expanded sector, to limit this study's scope, there are few limitations regarding this study. The first limitation of this scope is considered for the context of Sri Lanka. Secondly limitation of the study ascends, although there are many courier companies that provide domestic and international services to their customers, the researcher selected only the companies that provide international courier services and also perform as front-line courier companies in Sri Lanka. When considering the front-line courier companies, those companies serve more than 220 countries worldwide with direct flight facilities and with short transit periods. Taking into account these limitations, there are three companies. Furthermore, the study limits the respondents to, managers (senior/middle level/assistant) and executives of selected organizations. Due to the inconvenience of the internal organizational data gathering, the convenient sampling technique was used in the study for the data collection. Generally, the case company should give more attention to SCM practices for more improvement of their Organizational Performance.

Keywords: Strategic Supplier Partnership, Quality of Information Sharing, Outsourcing, Lean

"INNOVATIONS FOR SUSTAINABLE DEVELOPMENT"

FACULTY OF ENGINEERING & TECHNOLOGY

Developing a Seawater Intrusion Model for the Coastal Aquifer Kalpitiya, Sri Lanka

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Abstract

The saltwater flow into freshwater aquifers caused by groundwater development is known as seawater intrusion. It is a significant issue in many coastal aquifers across the world. Salinity impacts the water quality of the Kalpitiya limestone aquifer and surrounding groundwater. In Sri Lankan saltwater intrusion investigations, modelling has not been explored adequately. This study aims to provide helpful information to protect the freshwater resource in the coastal aquifer of Kalpitiya peninsula from contamination by seawater intrusion. In this study, a 3D variable density groundwater flow model was applied to determine how far inland the seawater has moved for the current and future situation. The model input parameters were selected from an analysis of geological logs and permeability tests received from the National Water Resources Board (NWRB). The SEAWAT code was used to solve the numerical model for the couple density dependent flow system. The calculated model was then simulated for the next 20 years (2016- 2026-2036) using the same hydrological parameters to evaluate the extent of seawater intrusion for four expected scenarios. The model's results revealed that the Kalpitiya peninsula's aquifer is highly vulnerable to increased groundwater pumpage. As a result, management strategies should be developed to safeguard the aquifer from deterioration. In addition, the aquifer should be regularly monitored to determine the progress of seawater intrusion and to recommend the best ways to prevent it. As additional data becomes available in the future, the model should be updated to lower the uncertainty in the simulations. This study provides an excellent model for studying seawater intrusion in other coastal aquifers under similar conditions.

Keywords: Groundwater Modeling, Kalpitiya, Saltwater Intrusion, SEAWAT.

Smart Trash Can

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Abstract

There are few concerns to look up when using an indoor dustbin which are the overflow of garbage, dustbins with no lids and such. This creates unhygienic conditions for individuals and creates a bad smell in the area which in turn leads to the spreading of bacteria and viruses. In order to avoid such issues, smart dustbin control is carried out and implemented with the help of various sensors using an Arduino Control Unit. Ultrasonic sensors are used in this system to monitor the level of garbage and for the automatic door opening and closing function. A GSM module is used to send a message for updating the status of the bin to the respective authorities. When the bin level exceeds the limit, the dustbin will automatically close and lock the lid itself. Once the bin is full, the user will not be able to access the bin and it will notify the respective authorities. This helps to prevent the overflow of garbage. This project will provide a more efficient way to help with a simple daily problem. Also, it will help to create a hygienic way for the users to throw away their garbage and it will keep the dustbin area cleaner and tidier.

Keywords: Arduino Control Unit, Ultrasonic Sensor, Global System for Mobile Communication (GSM) Module.

Fibre Reinforcement Polymer Bars as an Alternative to Steel Rebars Used in Rigid Pavements near the Sri Lankan Expressway Toll Plazas

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Abstract

One of the main drawbacks of regular steel rebars is corrosion. This will cause to last the structure within a limited lifetime. Due to the frequent acceleration and deceleration of vehicles within a small distance, the pavement deteriorates at a higher rate. Thus, rigid pavements are recommended to have near toll plaza areas compared to normal bituminous pavement. Hence, toll lanes near toll plazas are constructed as heavily reinforced concrete rigid pavements. When considering the existing Reinforced Concrete Pavement (RCP) design near toll plaza areas in Peliyagoda, Seeduwa, Dambokka and Kurunegala; it is clear that the used RCP consists of several types of joints and dowel bars, that can be opened to the environment through those openings if the sealant got damaged. This will reduce the life span of the RCP near toll plaza structures and the repairing process and the replacement process might cost a huge amount of money. Recently the new construction trend has appeared to use Fibre Reinforcement Polymer (FRP) in the place of regular steel bars. The objective of this study is to evaluate the cost-benefit parameters if Glass Fiber Reinforcement Polymer bars are used in the rigid pavement design near toll areas instead of regular steel bars. The study revealed that the replacement of reinforced concrete pavements in the above toll gates with Glass Fibre reinforced polymer bars will increase the material cost by 26.25% at Peliyagoda, 29.41% at Dambokka, and 29.66% at Kurunegala and will reduce it by 12.31% in Seeduwa. The study exposed that, though the initial construction cost is high, structures constructed with fully GFRP, are expected to have a service life of 75 years.

Keywords: Toll Plaza, Fibre Reinforced Polymer Bars, Rigid Pavement

Study On Compaction & Permeability Characteristics of a Liner Material Made of Compacted Sand Bentonite Mixture

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Abstract

Sand and bentonite mixture is generally used as a liner or backfill material at waste disposal sites and construction of hydraulic barriers. Bentonite is added to sand to achieve a higher compaction density and lower shrinkage. Permeability is an important property of sand-bentonite mixtures and it's often required for the design of the liner/barrier of the containments. A review of the literature showed that most of the past research work has focused on studying the influence of bentonite on the various geotechnical properties of sand–bentonite mixtures. In this study, the permeability of sand–bentonite mixture is investigated to support recommendation for a cost-effective liner material. Locally available sea sand was mixed with different proportions of sodium bentonite. A series of standard tests such as Atterberg limits tests, proctor Compaction test and Permeability test for hydraulic conductivity characteristics, were conducted on different of sand-bentonite mixtures. The mixtures were formed by mixing local sea sand, with (20%, 30%, 40% and 50%) by dry of sodium bentonite. The investigations are presented to show the influence of bentonite clay on compaction, Atterberg limits, and permeability of sea sand by increasing the bentonite content 10% by weight each time. It was found that there is significant improvement in MDD and OMC of sand-bentonite mixture. This study focuses on the effect of bentonite content on permeability, which is important requirement of hydraulic liner material, of sand-bentonite mixtures.

Keywords: Geotechnical properties, Sand-Bentonite mixture, Hydraulic conductivity.

Development of Unit Rate for Bored Cast In-Situ Piles

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Abstract

Bored cast in-situ piles are often used for deep foundations since it can bear large amount of load of the superstructure and has very less vibration and noise compared to other types of piles. But there is no any rate document or work norms related to bored cast in-situ pile. Due to this, estimating the cost of a bored cast in-situ pile during the tendering stage is difficult. There are various studies done to identify the factors affecting the cost. However, there is no exact method to determine the rate. Therefore, the aim and objective of this research study is to develop a unit rate and work norms for soil layer, weathered rock layer and hard rock layer separately with different pile diameters. This study was proceeded with the data collection from five different piling sites and analysis was based on three factors as Manpower cost, machinery cost and material cost. Hence high percentage cost activities were identified and also the average rate of penetration graph was plotted with the substrata conditions. Results shows that material cost is higher for soil layer and weathered rock layer and machinery cost is significantly high for hard rock layer. Also It was revealed that the most critical cost affecting factors are pile diameter, pile length and substrata conditions and their respective length. This developed unit rates can be generalized to all the civil engineers and bidders can utilize the average rate of penetration graph and this developed unit rates by updating the price indices to get the market rates as specifications in the tendering process. Through this study, huge market competition of the piling company and their own pricing strategy can be minimized.

Keywords: Bored pile, Substrata, Rate of Penetration, Soil Layer, Weathered rock layer and hard rock layer

Design and Simulation of a Multi Stage Wind Turbine

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Abstract

As fossil fuel reserves around the world are nearing depletion It is important to take necessary measures in increase the amount of energy produces though renewable energy methods in order to fulfill the energy demand around the world and affordable to small scale domestic investors. Therefore, this research project was aimed to implement a new savonius type vertical axis wind turbine design which extracts energy at two stages but previous studies which employed dual stage extraction was very low but promising. Computer aided design and computational fluid dynamics was employed through SOLIDWORKS & ANSYS for initial result verification and SST k-omega model was chosen as the viscous model. Three models were developed such as Base, Simulation and experimental. The base model was a traditional savonius wind turbine with the same cross-sectional area which the simulation and experimental results were compared to for improvements. The results obtained through the simulation were re-validated via an experimental prototype model. Results obtained though simulation and experimental designs were proven to be effective, indicating higher power out puts and efficiencies compared to traditional savonius vertical axis wind turbines. The power output of the system increased with increasing free stream air velocities while the efficiency of the system was increase with decreasing increasing free stream air velocities reaching a maximum of 26.663%.

Keywords: Savonius, Multi Stage Wind Turbine, Computational Fluid Dynamics (CFD)

Designing of an Optimized Safety and SMART Seat for Passenger Transportation

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This paper includes the design of an optimized safety and smart seat for passenger transportation. Seating comfort is one of the most important indicators of automotive seat performance. The profile of a bus seat needs to be designed ergonomically for various body sizes of passengers. The aim of this project is to create an optimized passenger seat with enhanced safety features for the upcoming bus industry in Sri Lanka. In this project, three types of seat structures for passenger buses have been designed according to the 95th percentile of Sri Lankan anthropometric data. Out of the three types of seats that has been designed, second design is chosen as the best design since it has been designed with enhanced safety features. The selected seat structure was checked by three main types using FEA (Finite Element Analysis). Those are total deformation, equivalent stress and equivalent elastic strain. The materials used to design the final seat structure were structural steel and polypropylene. The final seat completely designed as a smart type seat. But the manufacturing cost of the final seat is a little bit high.

Keywords: Ergonomically, Anthropometric, Finite Element Analysis (FEA), Total Deformation, Equivalent Stress, Equivalent Elastic Strain

A Study on the Effectiveness of Implementing Adaptive Traffic Control Systems for Urban Intersections in Sri Lanka

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Abstract

The current conventional traffic signal control system in Sri Lanka is a static timing method which does not vary with the real-time demand. Since the signal phases and times have been determined according to historical data, these systems tend to be less effective when the vehicle flow is high. This is a frequent observation at intersections where vehicles queue up and wait. Consequently, unnecessary delays are experienced by the road users along with increased vehicle operating costs due to fuel burning during idling times. A loss is incurred as the people who are a part of the work force of the country are spending time on the road needlessly. Emission of burned fossil fuel imposes a threat to the environment. Hence, shifting to efficient and more environmentally sustainable signal control strategies is of paramount importance in the present-day. The static system is not equipped with sensing mechanisms to obtain data on the real-time traffic situation at the intersection. Flow volumes and densities are not captured; so, the green time allocated by the system to each direction of the intersection may not be the most optimum setting for the actual scenario. However, with the novel technologies, accessing the real-time traffic data at intersections has become a possibility and this has paved the way for the developers to design further optimized solutions. 'Adaptive Traffic Control System' is one such solution where green times are adjusted instantaneously to suit the actual traffic flow. Here, an array of sensors is used to detect vehicular traffic. In adaptive traffic controlling, signal times at intersections are intelligently planned to keep the waiting time to a minimum, based on the traffic classification. Ultimately, the intersection performs better and operational improvements such as delay reduction and shortened queues can be gained. In this research, the effectiveness of the adaptive traffic control system was studies by utilizing a micro-simulation technique. A field survey was done to gather necessary data and a commercially available software application was used to develop the simulation models. The effectiveness was measured with predefined performance indicators. As per the results, it was evident that adaptive traffic controlling will significantly optimize the intersection operations. This method can even be expanded to study pedestrian crossings according to the number of pedestrians.

Keywords: Adaptive Traffic Control System, Intersections, Traffic Microsimulation

A Sustainable Approach to the Designing and Implementation of an Oxygen Concentrator and the Outcomes of Oxygen-Enriched Air of Internal Combustions Engines for Automobiles

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Abstract

At present, there is a huge growing concern towards sustainable approaches in various industrial chains which has also impacted the automobile industry. With the increasing concerns regarding climatic and environmental resource degradation, which has taken a huge toll from an environmentalist's perspective, sustainability has become a vital strategic priority in the automobile industry. The automobile usage has increased to a level where almost everyone drives their own automobiles in the road. This has resulted in the emission of a bulky amount of polluted air to the atmosphere. Therefore, this paper has attempted to find a solution for the harmful exhaust emissions through internal combustion engines and in which, this system also increases the performance and efficiency of an automobile's internal combustion engine. This study is primarily based on using an oxygen concentrator device modelled, comprising of molecular sieves for the extraction of oxygen and supplying the collected oxygen combined to the intake of the engine and analysing the outcomes of providing oxygen concentrated intake air to the internal combustion engine, which can be a potentially successful system. The use of oxygen enriched air for the internal combustion of automobiles are discussed in-depth which will ultimately reduce the exhaust emissions such as Hydro Carbons, Green House Gases including, Carbon monoxide (CO), Sulphur dioxide (SO2) as well as Volatile Organic Compounds (VOCs) and other Particulate matters (PM). The use of oxygen enriched air for the combustion intake of a diesel engine is tested and has been successfully ascertained the fact that oxygen enrichment indeed has substantially positive outcomes in relation to exhaust emissions and performance of an internal combustion engine. Hence, the application of an innovative oxygen concentrator for automobiles is proved to be viable.

Keywords: Sustainable Automobile, Oxygen Concentrator, Internal Combustion Engine

A Four-Wheel Steering System to Improve Stability and Handling

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Abstract

Most of the vehicles that are being used up to date, are using the conventional front-wheel steering systems as their steering systems. In this project, a four-wheel steering (4WS) system has been introduced to get rid of the common problems in front-wheel steering systems, such as having a larger turning radius when making a turn. Not only the issue on larger turning radius but also this four-wheel steering system gives so many advantages to its operator with three different steering modes. As the conventional front-wheel steering mechanism is lacking in efficiency when compared to the four-wheel steering system, the driver of such front-wheel steering vehicle has to put so much of effort to maneuver the vehicle. So, the three steering modes can give solutions to that problem and the way that is has been done is explained in the report with more details. The usage of a four-wheel steering system is the only solution to overcome the problematic situations of over-steering and under-steering of the vehicles. The main purpose of this project to make all front and rear wheels steerable simultaneously in order to increase the stability and maneuverability of a vehicle. In this project, a fully mechanical approach was taken to make all wheels of the vehicle steerable.

Keywords: Four-Wheel Steering System, Front-Wheel Steering System, Turning Radius

Smart Plant Sprinkling System

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Abstract

An automated plant watering device called the Smart Plant Sprinkling is employed to improve cultivation. The main objective of a smart plant sprinkling system is to make watering plants more realistic. By automating the system, this goal may be achieved even when no one is home. This system is fully programmed using the Arduino UNO, and it continuously senses the moisture of the soil using the soil moisture sensor, automatically turns on the water pump, and automatically waters the plant. When the plant is watered, a message is transmitted to the user via a Bluetooth module. Two LED lights will be used in the smart plant irrigation system; when the moisture level is low, one of the lights will blink red to indicate that the soil is dry, while the other will blink green. The actual time of the day is determined by a real-time sensor, and as plants need to be watered twice daily, the watering schedule is determined by the soil's moisture content. Water will be conserved when the process is automated unless there is increased water waste. As a result, there will be less water wasted because this automated system will determine how much water the plant needs to be watered. When these operations are carried out manually, the amount of labor required can be decreased and the saved labor can be put to better use doing something else. The laborers' work will be more time-efficient as a result. We can measure the quantity of fertilizers used, the amount of soil required for a plant, and other factors to further develop the smart plant sprinkling system. Unless keeping a constant eye and manually watering to keep your grass green, an autonomous irrigation system might be worth. Furthermore, this reduces your stress level, prevents costly over-watering, and makes the system nearly maintenance-free.

Keywords: Smart Plant Sprinkling, Irrigation System, Cultivation

Sun Tracking Solar Panel

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Abstract

One of the most important issues in the world now is the energy crisis. Renewable energy sources have received a lot of attention as a result of environmental pollution and the rising cost of fossil fuels. Solar tracking is a practical method for increasing the efficiency of solar panels. The main objective of this project is to track the sun and rotate the solar panel accordingly, to receive sunlight to the fullest extent always during the daytime. This system includes LDRs, resistors, an Arduino board and the movement of the solar panel is achieved by interfacing a server motor to the solar panel that changes its direction according to the positioning of the sun. This is achieved using the reference controls the movement time for 12 hours by a program written in such a way that for every given time the solar panel faces to the sun to generate maximum power which is stored in batteries for future use. As a result, the solar panel tracks the sun from east to west automatically for maximum intensity of light. Trackers generate more electricity than their stationary counterparts due to increased direct exposure to solar rays. This increase can be as much as 10 to 25% depending on the geographic location of the tracking system. So, it can be concluded compared to their traditional fixed position counterparts, solar systems which track the changes in the sun's path over the course of the day collect a far greater amount of solar energy, and therefore generate significantly higher output power.

Keywords: Renewable Energy, Solar Tracking, Solar Panel

Air Pollution Dispersion Modelling for Vehicular Exhaust Emissions in Colombo Sri Lanka using AERMOD

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Abstract

At a time when environmental air pollution is more intense, the air pollution caused by exhaust emissions from vehicles has increased significantly. Especially in Sri Lanka, it is hard to get an idea of pollutant distribution in a particular area due to the missing of simulated area distribution maps. This research has studied the prevalence of air pollutants and area distribution maps of Carbon Monoxide (CO) and Particulate Matter (PM2.5) as taking the tracer gaseous. Baseline road, one of the busiest roads in Colombo has been selected as the study area and the evaluation process was conducted using the AERMOD. It is consisting of three model data. Meteorological data which are hourly surface data for the year 2021 have been collected from Sri Lankan Meteorological Department, and the required coordinates that are Geological data has obtained through Google Earth. To fulfil the source data requirement, a manual traffic count was conducted considering the vehicle segregation in the particular study area during two peak hours and one off-peak hour as well. Two wind rose diagrams were obtained as the Meteorological outputs and area distribution maps were provided for the tracer gaseous by considering three different time periods. Results were got for Petrol and Diesel-powered vehicles separately, and the Total vehicle scenario also been considered. According to the Meteorological result, the wind was blowing from South-West to North-East direction on average throughout the year ranging from 0.5 m/s to 5.7 m/s. When considering the dispersion results, Total CO and PM2.5 dispersion were respectively 3059 μg/m3 and 17.9μg/m3 when compared with the guideline values CO was below the required levels and PM2.5 exceeded the WHO guideline values but lies in the permissible level for the Sri Lankan standards.

Keywords: Air Pollution, Vehicular Emissions, AERMOD, Carbon Monoxide (CO), Particulate Matter (PM2.5)

Sensor Based Gas Leakage Detector

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Abstract

"LP gas" is the most widely used domestic fuel in the world. For this reason, gas accidents that occur on a daily basis around the world, cause a great deal of loss of lives as well as properties. LP Gas is highly inflammable and can burn even at some distance from the source of leakage. This energy source is primarily composed of propane and butane which are highly flammable chemical compounds. These gases can catch fire easily. In homes, LPG is used mainly for cooking purposes. When a leak occurs, the leaked gases may lead to an explosion. Gas leakage leads to various accidents resulting in both material loss and human injuries. Therefore, our team has created a "Gas Leakage Detector" as a solution. Gas Leakage Detector is placed where the gas cylinder is placed, so that it detects if the LP gas in the surrounding air exceeds the normal volume. This system is based on the Arduino UNO R3 and MQ-9 gas sensor. What happens here is that the "gas sensor" in the system which will only detect LPG Gas for gas, detects changes in the surrounding air and initially notify the "Arduino UNO" system at the processors where it processes the input from the sensor. At that time, based on the information provided by the sensor, the system concludes whether or not a gas leak occurs. After that, if the system found out there is a gas leakage at the movement, the system will run "GSM module" to communicate with the user by sending an alert message to the customer's mobile phone. This module will cover only in the coverage at Telco. The roaming coverage will not include. This product will help prevent many gas accidents around the world that cost many lives and we desperate to sell it to the consumers at a "low price".

Keywords: Gas, Energy, Detector, Leakage

RFID Attendance System with Body Temperature & GSM Module

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Abstract

Many organizations are currently worrying about the safety of their employees as COVID-19 has started to spread again. New techniques to accurately record attendance while maintaining the institution's safety are demanded highly at the moment. Even now, despite the technological advancements, companies, factories, and academic institutions use antiquated systems to mark attendance. The most popular techniques are signature and fingerprinting. Additionally, the methods used to measure temperature and sanitize hands to eradicate the COVID-19 virus are less secure. To overcome the limitations of outdated technology, this project includes a GSM-based RFID card (Radio Frequency Identification) attendance marking system, once we waved the RFID card to the RFID reader, a message will be sent to the respective persons. Additionally, having a disinfecting system and a non-contact sensor-based temperature measuring method. The experimental designs of this prototype include contactless card entry and exit marking, temperature sensors that autonomously measure temperature without outside assistance, and ultrasonic sensors that identify hands and disinfect them without touching. As well as sending an SMS to the HR manager or other responsible party when the temperature rises upon arrival and leaving, LED lights also instantaneously display the usual temperature or the danger zone temperature. As a result, a database file system without conventional attendance methods can be created, and non-relational systems can be used to assure self-protection. With the project, the organization's facilities may be maintained securely, and a new system for recording attendance could be implemented right away to boost the facility's effectiveness.

Keywords: COVID-19, Health, Attendance, Temperature, GSM, RFID

Simulate Urban Catchment Runoff using Rational Method

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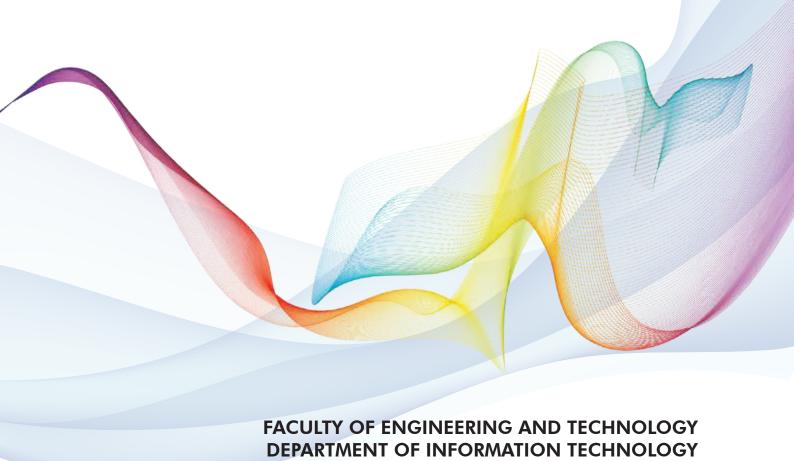
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Abstract

The increasing urban flood problem in the Hanwella catchment area of Sri Lanka was answered under this study and the objectives of the study were the simulation of existing and future scenarios of the Hanwella catchment using the rational method. For the analysis, first, the Hanwella catchment area and its sub-catchments were delineated using opensource QGIS software and land use categorization was obtained as water bodies, vegetation, agricultural, built-up, and others (bare lands, unimproved lands, etc.). Then, composite runoff coefficients of each sub-catchment were calculated and rainfall intensity was calculated using annual rainfall data between 1996-2005. Thereafter, the runoff volume of each sub-catchment was estimated using the rational formula and their summation was taken as the total runoff volume of the catchment. As the next step, total runoff volumes for 5-year and 10-year return periods were estimated using the rational formula with predicted rainfall values for 5-year and 10-year return periods using the frequency analysis method. As per the results, the simulated existing runoff volume was 1147 m3 /s and it can be expected to increase by 20% and 40% within 5 and 10 years respectively. The reduction of permeable surfaces due to rapid urbanization can be identified as the main reason for this runoff increment. The validation of the results with actual discharge values showed that rational method runoff values were a bit higher than the actual values but that difference was insignificant. Therefore, in conclusion, it can be stated that the rational method is a reliable runoff simulation method. For future works, the use of smaller sub-catchments and further categorization of land use can be recommended to improve rational method calculation. Moreover, implementing sustainable stormwater drainage strategies can be recommended as a solution to the rising urban runoff issue.

Keywords: Rational Method, Runoff, Urbanization, Frequency Analysis

"LEVERAGING INFORMATION TECHNOLOGY TOWARDS A BETTER SUSTAINABLE DEVELOPMENT"

FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF INFORMATION TECHNOLOGY

Undergraduates' Use of Internet Services for Academic Purposes in Rajarata University of Sri Lanka

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Abstract

The Internet has evolved into a vital tool for business, education, government, and entertainment, with an impact on all parts of humans, including business operations, education, communication, entertainment, social activity, and shopping. Many universities have started to use technological advances in their learning and teaching activities. While the Internet may be advantageous to students' learning by allowing them to access relevant academic information, it also provides them with possible alternatives that are harmful to their academic experience. This study was conducted to examine the factors that motivate and influence the students' use of the Internet for academic purposes at the Rajarata University of Sri Lanka. The researcher developed a structural questionnaire and data was collected from 150 respondents by using convenient sampling. The researcher employed Descriptive statistics, Correlation, and Regression analysis for hypothesis testing as data analysis techniques using the Statistical Package for Social Science (SPSS) as the primary data analysis tool. Mainly the relationship between students' attitudes, Perceived Behavioral Control, Perceived usefulness, and Perceived ease of use (Independent Variables) with the Internet services and their views regarding the usage of the internet has been tested with the practical usage of internet services for academic purposes (Dependent Variable). According to the coefficient values of the regression analysis statistics, two hypotheses was not accepted because the relationship between Students' attitude, Perceived behavioral control and the usage of Internet services for academic Purposes was not significant. It has a Negative relationship. The other two hypotheses were significant with the regression values and further verify the positive relationship between independent and dependent variables. According to the correlation analysis values, all hypotheses were significant and verified that there is a positive and strong relationship between independent and the dependent variables.

Keywords: Internet, Services, Academic Purposes

Factors Influencing on Adaption to E-Business by Small & Medium Entrepreneurs in Rathnapura District During Covid-19 Pandemic Situation

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Abstract

This study aimed to investigate the factors that affect e-commerce adaption in small and medium-sized enterprises (SMEs) in the Rathnapura district. The research was undertaken using 156 SMEs from the population. Data collection tools and techniques involved face-to-face semi-structured and unstructured interviews, questionnaires, telephone interviews, and document analysis of SME reports and observations. A conceptual framework was developed to capture elements from extant e-commerce adoption literature that are defined in the research question. Data collected from each of the SMEs were analyzed to present the findings based on the elements described above. These factors include individual factors, organizational factors, technological factors, and environmental factors. Several elements have been discussed and their impact on adaption to e-business by SMEs in the Rathnapura district. Those are owner/manager characteristics, level of education and awareness under the individual factors, size of the organization, financial ability and cost implication under the organizational factors, availability and speed of internet, language barriers under the technological factors, and government policy and regulation, the nature and characteristics of value chain under the environmental factors and finally procurements, advertising, and marketing are under the adaption to e-business by SMEs (dependent variable). Primary data was collected by using structured questionnaire. It was used statistical analysis packages (SPSS) to analyze data. Descriptive statistics including frequencies, measure of central tendency (Mean, Median and Mode) and measure of dispersion (standard deviation) use to analyze the gathered data from these questionnaires. The correlation analysis clearly indicated that, there are positive correlations between a dependent variable and independent variables while the regression coefficient of individual factors, technological factors and organizational factors indicates those have positive impact on adaption to e-business. The result of this study shows that Small & Medium Entrepreneurs individual factors, organizational factors and technological factors to adapting e-business have significant positive impact but environmental factors to adapting e-business has no impact.

Keywords: E-Business, Small & Medium Entrepreneurs, Covid-19 Pandemic Situation.

Factors Influencing on the Students' Satisfaction of E-Learning in State Universities of Sri Lanka during the Covid-19 Pandemic

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Abstract

E-Learning has grown rapidly during the last few decades. However, due to the outbreak of coronavirus (COVID-19), usage of online education tools has increased and became the main medium of the delivery of education because of the country lockdown and university closure. This study investigates the factors influencing on the students' satisfaction of e-learning in state universities of Sri Lanka during the covid-19 pandemic. Students' satisfaction of e-learning is one of the critical factors that makes e-learning a success. There are many factors that can influence students' satisfaction of e-learning. Among them, computer self-efficacy, perceived usefulness, and perceived ease of use play a major role. The researcher selected empirical evidence to support the selected variables and a conceptual framework was developed. Yet there are many factors influencing the students' satisfaction of e-learning. Besides that- main objective, there are three specific objectives to identify the influence of each factor on students' satisfaction of e-learning. Based on those objectives, three hypotheses were developed for testing. The researcher collected 202 responses from university students as a sample across the 17 state universities in Sri Lanka. The sample was selected through the stratified sampling technique, and a self-structured questionnaire was used to gather data from the respondents. The SPSS 25 package was used to analyze data for this study, and after analyzing the data, the three hypotheses were accepted based on the correlation and regression analysis results. When considering the both analysis, there is a positive relationship between computer self-efficacy, perceived usefulness, perceived ease of use with students' satisfaction of e-learning. Finally, recommendations were made in line with the objectives of the study and based on the results.

Keywords: Students' Satisfaction, E-Learning, Covid-19 Pandemic.

Factors Affecting the Public Value of E-Government Adoption in Sri Lanka (With Special Reference to Kegalle District)

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Abstract

Many years ago, the use of technology for government services and e-commerce was concerned only with a small number of specialists in Sri Lanka. However, with the advent of Information Communication Technology (ICT), the role of computers and other technological devices was improved to satisfy the requirement of the E-Government in government bodies. Not only developed countries but also developing countries are finding to enhance the performance of government services such as E-government services using the internet. The concept of public value is often used to assess the efficacy and efficiency of government services. E-government beneficiaries' rest of the people are not using E-government services. More valuable services are available but underutilized. Accordingly, this study aimed to identify factors affecting the public value of E-Government adoption. The independent variables were Security, Environmental Sustainability, Equity, Responsiveness, and Delivery to using the E-Government and the dependent variable was the public value of E-Government. Data were collected using a structured questionnaire from 140 internet users' within the Kegalle district in Sri Lanka by employing convenience sampling technique. The hypothesis was tested using correlation analysis, regression analysis, and ANOVA. The result of the study revealed that Environmental Sustainability, Security, and Responsiveness positively impact the public value of E-Government. The most influential factor is Environmental Sustainability, and the partially affected factor is security to using the E-Government that is affected the public value of E-Government. This finding suggests that the E-Government may provide an effective and efficient environment for internet users to develop their government-related skills and knowledge, and experience which encourages them to participate in the E-Government. Further, it was recommended that Government should be able to assure E-Government services' security. Moreover, decision-makers should think about how the government can be familiar with users of the E-Government.

Keywords: Public Value, E-Government, Adoption

Impact of Social Media Use on Academic Performance Among Undergraduates in Rajarata University of Sri Lanka

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Abstract

Social Media is currently a widely utilized way of communication. Social media has evolved into a vital tool for business, education, government, and entertainment, with an impact on all parts of humans including business operations, education, communication, entertainment, social activity, and shopping. This study was conducted to examine the impact of social media use on academic performance among undergraduates in Rajarata University of Sri Lanka. Although much research has been done regarding this matter in different countries, researchers could find only a few research studies relevant to the Sri Lankan university education context. Therefore, it is important to find out what factors affected students' usage of social media for academic purposes. So this study aims to investigate about factors affecting university students, use towards usage of social media for academic purposes. The researcher developed a structural questionnaire and data was collected from 105 respondents by using convenient sampling. The respondents chosen for this study were belongs to undergraduate students from the Rajarata University of Sri Lanka. The researcher employed descriptive statistics and hypothesis testing as data analysis techniques using the Statistical Package for Social Science (SPSS-25 Version) as the primary data analysis tool. According to the previous research and the pilot survey results, mainly relationship between student's addictiveness, exposure, time duration, and nature of usage (Independent Variables) with the academic performance and their views regarding the usage of social media has been tested with the practical usage of social media for academic purposes (Dependent Variable).

Keywords: Social Media, Academic Performance, Undergraduates.

Economical Home Automation

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Abstract

Smart Home Technology encircles a wide range of devices through Internet, simply known as Internet of Things (IoT). These devices are connected directly to the internet and controlled via a parent device. Plenty of Smart Home solutions are present in the world, the main drawback is the products are excessively pricey and literally the customer should own the household products of the relevant company. The main objective of this research is to convert every household device into a smart device by providing computing power to all connected devices using ubiquitous computing, that can be accessed through internet and controlled via mobile phone with Google Assistant and Alexa. Apart from the main objective the sub objectives are to conserve time due to busy schedules and for the aid of people with disabilities and elderly. ESP32 is the pivotal component, it's a low power system on a chip microcontroller which integrated Wi-Fi and dual mode Bluetooth. A third-party application known as 'Sinric-Pro' is used to link the devices with Google Assistant and Alexa. In this research two household bulbs and a fan are used for the implementation. These devices are connected to the ESP32 with relays and each device has a unique device ID which is given by the Sinric-Pro application which acts as a switch. When a voice command or a command from relevant application is given to the Google Assistant or Alexa through the mobile phone, the devices start responding to the specified instructions. The proximity between the household devices and the parent device might be any length of time. This system is simple as well as inexpensive, and it can be accessed from anywhere in the globe with a moderately strong internet connection. This provides an Ultimate Smart Home experience.

Keywords: Internet of Things (IoT), Computing Power, Ubiquitous Computing, Low Power System

Deep Learning Approach for Masked Face Recognition with Early Leave Alarm System

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Abstract

Face recognition systems are generally implemented in surveillance, attendance, forensics, and similar security-related applications. Given the COVID-19 scenario in the world, it is common to wear a mask in public. Traditional face recognition systems often find it challenging to adjust to this alteration, and consequently, their performance could decrease. Face masks cover a substantial area of the face, causing face recognition systems to recognize fewer facial characteristics. Face masks are already a common part of daily life; hence it is crucial to analyse and investigate how present state-of the-art face recognition algorithms perform when attempting to detect masked faces. This paper presents SSD face and mask recognition, as well as MTCNN face detection techniques, for a high-accuracy face recognition system. The main aim of this project was to develop an efficient masked face detection system with high accuracy. This system was able to achieve an accuracy of more than 96%.

Keywords: Machine Learning, SSD, MTCNN, Deep Learning, Face Recognition

Medibot Mobile App

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Abstract

The goal of this study is to use a virtual assistant or chatbot software and mobile technologies to tackle specific challenges. It is intended to computerize appointment calendars, specialist directories, and other aspects of identifying hospitals and their contacts, alleviating much of the difficulty associated with the manual technique for both patients and providers. This mobile application will be specifically designed for all patients living in Sri Lanka. With AI's text and speech recognition technology, a program called 'chatbot' has been built that stimulates human dialogue using voice commands, texts, or both. This application would direct each customer to the required specialist for channeling after a few steps have been completed. There are several benefits that can get from this mobile app. First, patients must register to the mobile app by creating an account, and then after, through this account patients will be able to search their list of appointments and can check whether their appointment is still on hold, accepted, or declined. If the patient would know the doctor by his/her good name, the patient can find the doctor by the name otherwise search by the specialty. After searching for a doctor or an appointment made, the patient can subscribe to the doctor by adding to a list as wishing to get a consultation from the same doctor. get the direct appointment details of the doctor by the chat with the chatbot and can book an appointment through it. And can conduct a conversation with the chatbot and get information such as diagnosis of the disorder and providing contacts of hospitals and recommendations of specialists by providing details of health issues and symptoms of the patient. Another feature is when a person feels a minor or severe infection or illness, the person contacts the nearest medical center/ dispensary and submits the symptoms to the relevant doctor and gets the right consultations and advice. According to the medical advice, the person can proceed further step by channeling a doctor and booking an appointment or if it is just a minor situation, most probably, the patient will be advised to take some medicine. Here this app is using chatbot feature specifically for the medical purposes of patients, so the app name is created and known as 'MediBot'

Keywords: Mobile, Technology, Medical

Intelligent, Secured Smart App for Complete Diabetes Lifestyle Management – "DiaBeta"

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Abstract

Especially today's society tends to use new technological devices instead of relying on document materials in daily life. While there are diabetes-related apps that more accurately predict users' prediabetes or diabetes type 2 using machine learning approaches, predicting health risks by analyzing glucose monitoring data, recommend meal and exercise plan, and using a non-invasive approach to measure and monitor blood glucose level, heart rate and blood oxygen level, and over Wi-Fi using NodeMCU makes the proposed DiaBeta application unique among diabetes applications. Other secondary functions such as digital logbook, reminders, lifestyle-based meal recommendation, medical guidelines, and efforts such as glucose monitoring data can be easily performed with a smartphone. The proposed DiaBeta app will help users reduce their risk of diabetes. DiaBeta is a life-saving app that can be used not only by diabetics but also by non-diabetics around the world to get a more accurate and personalized meal plan. DiaBeta offers precise, clinical, validated, and standardized solution for diabetes patient. Additionally, the system will automatically deliver surveys to registered users to assess their understanding of diabetes.

Keywords: Non-invasive, Diabetes Prediction, Machine Learning, NodeMCU, IoT

Smart Labor Turnover Solution System

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Abstract

Labor turnover is the number of workers leaving a business within a particular period. When an employee leaves a company, it affects a portion or even the whole of its operations. When employees depart in groups or companies, decreasing productivity decreases, Decreases Morale, Training Cost, and Replacement Cost. Therefore, our team has devised a solution for organizations with high labor turnover rates. Our research is done with the help of Machine Learning, Natural Language Processing technologies with model tuning techniques. This research contains four research novelty related to labor turnover solutions. This research is essential and valuable for the industry such as the Sri Lankan garment industry. What is being done here is the methodology for a web based application to provide and solve human resource issues. Significantly the System can predict existing labor turnover rates, accurately identifying and displaying the following potential resigning employee details with the help of ML. It has a Resume analyzing function, which will help determine the most skillful candidates to be interviewed if a vacancy is open. Moreover, the application enables laborers to answer some questions before resigning. It is question chain generation with emotion recognition. The labor answers will be evaluated using algorithms and give the summarization to the managers about their resignation reasons with some data visualization techniques. This research will be helpful for the industry, which can easily manage its human resource tasks. It also systematically provides the solution for labor turnovers and Makes work easier for HR management.

Keywords: Machine Learning, Natural Language Processing, AI, HR, Data visualization

IOT Based Smart Greenhouse with Weather Station

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Abstract

A green house is where plants, for instance, floors and vegetables are developed. Greenhouse's warmup during the day when sun-radiates enters through it, which warms the plant, soil and growth. Green houses help to shield plants from numerous illnesses, especially those that are soil borne and sprinkle onto plants in the rain. Greenhouse impact is a characteristic wonder and valuable to individual. Various farmers fail to get great benefits from the nursery crops for the explanation that they can't oversee two fundamental components, which decides plant development just as efficiency. Green house temperature ought not to go under a specific degree, High moistness can result to crop happening, buildup of water fume on different greenhouse surfaces, and water dissipation from the muggy soil. To defeat such difficulties, this greenhouse checking, and control framework acts the rescue. This undertaking exhibits the plan and execution of a different sensors for greenhouse climate observing and controlling. This greenhouse control framework is fueled by Arduino Atmega328 microcontroller it comprises of temperature sensor, light sensor, soil dampness sensor, LDR sensor, LCD show module, DC fan, Bulb and pump. Temperature sensor senses the degree of temperature. On the off chance that it goes high DC fans gets on and when the temperature goes low the fan gets off. Soil moisture sensor detects the water level as the level abatements the siphons gets on. Without light, the LDR sensor faculties and the bulb begins gleaming. By this way it will turn out to be not difficult to screen and control the system.

Keywords: IOT, Greenhouse, Smart

NURBOT - Nursing Robot - Serving to Quarantine Patients in the COVID 19 Pandemic

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Abstract

In Current COVID-19 pandemic situation, Active hospital and COVID-19 treatment centres is aspiring to accelerate services to patients, and to reduce the expose between doctors/nurses and patients by maintaining physical distance. The main purpose of this study is to develop a Nursing Robot system which acts as a Delivering essential goods and communicate with patients and doctor with this design. This designed helps doctors and patients recovering better.

The main contribution behind this paper is to deliver a multi-functional robotic system that works on reading line following technique and remote-control command move the according. The system is implemented using Arduino Mega and Uno that enables us to use multiple sensors for the reading pins. The output pins are used for the robot interaction with the motor controls, based on the input data. Using the motor controls as output movement will be the way of interaction. While using infrared (IR) sensors to enable the robot to read the black lines, that is, IR is used to recognize if the black line in front of the robot using IR light beams, and Ultrasonic sensors enable to the robot a path of follow is clear or not if it is not clear robot will be stop before the barrier. Using NRF receiver and transmitter, enable the user (Doctor or nurse) to move the robot manually. Using Wi-Fi direct technology enable doctors to communicate with patients. Using those technology cost will be reduced, and this was best for Sri Lanka.

Keywords: COVID, Robotic, Nursing

IoT- Based Smart Cattle Shed Management and Automation System

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Abstract

Using technology in agriculture has been a prominent change made recently to make agricultural routines and practices more sophisticated. Hence this study proposes to use the Internet of Things technology to improve animal husbandry in farming processes. It discusses about building an IoT-based monitoring and management system for cattle shed. The proposed system supports the farmer to measure highly close to the farm and to parade around the farm without getting the obnoxious aromas that come from it and allows farmers to do remote management which will support them to follow-up the processes even during their absence. This system's aim is to build smart and efficient cattle shed environment using low-cost wireless technology along with IoT technology that satisfies small-scale cattle shed management and security needs. Mounted sensors wirelessly collect and manage real-time data, and the system analyzes the data, sends information to the user, and lets the user control the shed through a mobile application. Sensing technologies are used in animal health monitoring to monitor a variety of health factors in livestock, such as heart rate, temperature, respiration rate, rumination, blood pressure, and physical movements. Further for the location monitoring, cattle's live location is tracked using GPRS, Wireless Sensor Networks (WSN), and RFID tags. The use of ultrasonic sensor technology allows for the creation of an intelligent feeding system for cattle. As result, it increases the efficiency of animal farm management by automating water and feed delivery, cleaning animal cages, controlling temperature, opening and closing gates, and controlling lights. Further, it reduces labor costs, prevents food wastage, manages water usage, and improves the health and security of cattle. Overall, this study emphasizes the use of technology to make agriculture more efficient.

Keywords: Internet of Things, Cattle Shed Management and Automation, Cattle Health Monitoring

A Study on Factors Affecting the Implementation of E-Logistics on Freight Forwarding Firms in Sri Lanka
(A Special Reference to Colombo District)

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Abstract

With the tremendous boom in e-commerce, has disrupted the global supply chain and industrial transportation networks has changed as customers increasingly anticipate same-day delivery of goods straight to their home. Hence, demand for freight forwarding services has been growing significantly. Therefore, freight forwarding firms need to pay more attention on adopting to advanced logistics technologies. This study explores the factors that influence on implementing e-logistics on freight forwarding firms in Sri Lanka. The conceptual framework was developed by exploring 12 influencing factors, which are categorized into three main factors as organizational factors, technological factors, and environmental factors. To achieve the research objectives a quantitative research approach was used, where to gather primary data a questionnaire survey is developed and distributed among employees under supply chain division of freight forwarding firms in Colombo metropolitan area. 266 responses were collected using convenient sampling technique by distributing the developed questionnaire through a google form and hard copies. Among collected responses 243 usable responses were taken into consideration for the analysis of the study. In order to go deeper into the study area, the researcher has additionally referred to secondary data sources. The findings of the study show that implementing e-logistics on freight forwarding firms in Sri Lanka has significantly positive impact by main three factors of the study. As per the knowledge of the researcher and the findings from this study indicates that, in the Sri Lankan context, there is only one published research article on a similar discipline. The results of the study can be used to develop better strategies for Sri Lanka's freight forwarding firms.

Keywords: E-Logistics System, Technologies, Freight Forwarding, E-Commerce.

"TECHNOLOGY PUSH
WITH SOCIETY CHANGE;
REFRAMING HEALTH SOCIETY RELATIONSHIP"

FACULTY OF HEALTH SCIENCES

Screening and Characterization of Protease Inhibitory Activity in Seeds of *Vigna unguiculata* ssp sesquipedalis (Rathu mae) Growing in Sri Lanka

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Abstract

Trypsin is a serine protease which plays a major role in regulation of many biological processes in organisms. Alterations in endogenous proteases lead to certain pathological conditions including cancers, neurodegenerative disorders, cardiovascular diseases and etc. The discovery of the of novel serine protease inhibitors pave the way to develop new drugs to treat such diseases. The study evaluates the trypsin inhibitory activity (TIA) in Rathu mae seeds, a local variety of *Vigna unguiculata* ssp sesquipedalis which were collected from the Plant Genetic Resources Center, Gannoruwa, Peradeniya, Sri Lanka. A concentration gradient of (1.25, 2.5, 5.0, 10.0 and 20.0%w/v) aqueous seed extract was screened for TIA by incubating with trypsin and casein. The absorbance of the supernatants was measured at 280 nm and percentage TIA (%TIA) were calculated. Then the concentration which exhibited maximum %TIA was tested for activity under different reaction conditions such as a range of temperatures and pH, presence of various metal ions, detergents, oxidizing and reducing agents. The maximum %TIA ($95.86 \pm 0.002\%$) was exhibited by 10.0% extract. The highest %TIA was observed at 20°C ($94.46 \pm 0.03\%$) and at pH 6.4 ($92.00 \pm 0.03\%$). In the presence of Cu^{2+} ($88.62 \pm 0.02\%$), Fe^{3+} ($87.32 \pm 0.03\%$) and Zn^{2+} ($88.76 \pm 0.02\%$) the %TIA was significantly ($p < 0.05$) decreased, while it wasn't significantly ($p > 0.05$) affected by the presence of Ba^{2+} ($91.82 \pm 0.01\%$) and Na^+ ($90.18 \pm 0.03\%$) ions compared to the control. The presence of detergent, Triton X-100 ($92.76 \pm 0.02\%$), TIA wasn't affected significantly ($p > 0.05$), however, it was significantly ($p < 0.05$) reduced by the presence of oxidizing agent, DMSO ($86.76 \pm 0.01\%$) and reducing agent, dithiothreitol ($82.12 \pm 0.02\%$). Final result is that Rathu mae seeds extract possess a remarkable TIA and the information on the effect of different reaction conditions on the TIA will be useful for future studies.

Keywords: Proteases, trypsin inhibitors, *Vigna unguiculata*

Sub-acute Toxicity Study *Averrhoea carambola* (Starfruit) Juice in Wistar Rats

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Abstract

Averrhoea carambola, ("Kamaranka" in Sinhala) is a popular fruit in Sri Lanka. It is considered containing beneficial nutritional and medicinal effects such as antioxidant, hypoglycemic, hypotensive, hypocholesterolaemia, anti-inflammatory, anti-infective, and antitumor effects etc. However, it has been reported that the fruit contains neurotoxin, caramboxin and a large concentration of oxalic acid, which may exert harmful effects on kidneys. Hence, the study was carried out to assess the possible sub-acute toxicity effects of the high doses of starfruit juice in Wistar rats in compliance with the Organization for Economic Co-operation and Development (OECD) guidelines. Healthy adult, Wistar rats weighing 150-200 g were used to evaluate the sub-acute toxicity effect of aqueous extract of *A. carambola fruits* (AEAF). Ethical clearance was obtained from the Ethics Review Committee, Faculty of Medical Sciences, University of Sri Jayewardenepura. In each assay, test group was administered with AEAF (35 mL/kg B.W.) and healthy control was administered with distilled water, in divided doses. In each assay, assessment of mortality and the behaviour of the animals were carried out by the general observations of each animal twice daily from the stage of dosing to the end of the study. Changes in body weight, water consumption and food consumption were compared with the control group. Haematological and biochemical parameter were measured to evaluate the safety of the test extract. All the results were expressed as mean ± standard error of mean (SEM). The p- values < 0.05 were considered as statistically significant. During the entire period of all studies, there were no mortalities found following administration of AEAF. However, there was a significant difference ($P < 0.05$) in haemoglobin, serum urea and aspartate aminotransferase levels. Hence, it was identified high consumption of *A. carambola* fruits can induce sub-acute toxicity effects.

Keywords: *Averrhoea carambola*, Kamaranka, sub-acute toxicity

Comparison of Total Phenolic and Total Flavonoids Contents in Two Varieties of *Clitoria ternatea* Fresh Flowers

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Abstract

Clitoria ternatea is one of the herbal plant belongs to the family Fabaceae. It is known as "Nil Katarolu" in Sinhala. Our previous study has shown that fresh flower of *C. ternatea* has significant anti-inflammatory activity on 1,1-diphenyl-2-picrylhydrazyl (DPPH) assay. As plant phenolics and flavonoids play a great role in scavenging free radicals in the body and act as antioxidants, the present study has been aimed to compare total phenolic and flavonoids amount in the flowers of two varieties of *C. ternatea* i.e. blue flowers with normal keel petals (BNP), and blue flower with enlarged double petals (BEP). Fresh BNP and BEP were collected from the Western province and authenticated. Total phenolic content (TPC) of hot aqueous extracts of BNP and BEP was determined by using the Folin–Ciocalteu method and $AlCl_3$ method was used for total flavonoid content (TFC). Gallic acid (6.25 μg/mL- 50 μg/mL) and quercetin (200 μg/mL- 800 μg/mL) were used as positive controls for two assays respectively. Total phenolic and flavonoid contents were determined by using the graph plotted with the mean absorbance of triplicates of each gallic acids and quercetin samples vs. different concentrations. The total phenolic and total flavonoid contents were expressed as milligram of gallic acid equivalent (GAE) per gram and milligram of quercetin equivalent (QE) per gram of extracts respectively. It resulted that the total phenolic present in BNP was 3.651 $\pm$ 0.05 mg GAE/g fresh weight of BNP, whereas it was 3.47 $\pm$ 0 mg GAE/g fresh weight of BEP. The total flavonoids were 63.58 $\pm$ 0.58 mg QE/g fresh weight and 50.42 $\pm$ 0.29 mg QE/g fresh weight for BNP and BEP respectively. In conclusion, the present findings provided scientific evidence for the presence of phenolic and flavonoids in fresh flowers of *C. ternatea* which may contribute to their previously recorded antioxidant properties. The results showed that blue flower with normal keel petals has significant ($p < 0.05$) higher amount of total phenols and flavonoids than blue flower with enlarged double petals.

Keywords: *Clitoria ternatea*, "Nil Katarolu", Total phenols, Total flavanoids

Formulation, Characterization and Stability Evaluation of Mosquito Repellent Gel Containing *Lantana camara* Flower Extract

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Abstract

Mosquitoes have been a nuisance for humans since ancient times. The deathly diseases and the irritations caused by mosquitoes have led to disclosure of personal protection methods. The most essential methods of regulating mosquito borne diseases are mosquito control and personal protection against mosquito bites. Natural mosquito repellents have more advantages than synthetic repellents and are widely acknowledged by the public. L. camara flower extract was, proven with effective repellent properties and considered in this study for formulation of mosquito repellent gel. Thus, the purpose of this research was the formulation, characterization and stability evaluation of a mosquito repellent gel containing *L. camara* flower extract. Series of gel formulations were prepared using L. camara flower extract, triethanolamine, potassium sorbate, PEG 4000, carbopol 940, distilled water, lavender oil, and aloe vera gel according to five randomly selected ratios. The volumes taken from aloe vera gel, PEG 4000 and carbopol 940 were changed in each formulation while keeping other ingredients in constant volumes. The developed gel formulations were then characterized by determining the texture, colour, odour, spreadability and pH. Short-term stability (14 days), long-term stability (90 days), accelerated stability (28 days) and cycling test (24 hours) were considered to evaluate the stability in cold (8 °C), room (28±5 °C), hot (40 °C) temperature conditions. Two gel formulations comprising 26.8% aloe vera gel, 12.5% PEG 4000, 2.5% carbopol 940 and 23.8% aloe vera gel, 15% PEG 4000, 3% carbopol 940 were the best formulas obtained with 9.6 gcms-1 of acceptable spreadability in each within the non-skin irritating range of pH 4-7.

Keywords: *Lantana camara* flower extract, mosquito repellent gel, stability evaluation

Comparison of Antioxidant Activities of Different Parts of *Allamanda cathartica* in DPPH Assay

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Abstract

Allamanda cathartica (named "Wel Rukaththana" in Sinhala; "Thimble Lady" in English) is a herbal plant that belongs to the family Apocynaceae. The leaves, roots, stems, flowers and the whole of this plant have been used for centuries in traditional medicine to treat various diseases. Although A. cathartica is widely used, the literature survey revealed that published scientific information on the medicinal value of this plant is scarce. Hence, the present study aimed to evaluate the comparison of antioxidant activity of fresh leaves, roots, stems and flowers of this pant by using a 1,1-diphenyl-2-picrylhydrazyl (DPPH) assay. Fresh plant materials were collected from the Colombo district and authenticated. Hot aqueous extracts of fresh leaves (AEFL), roots (AEFR), stems (AEFS) and flowers (AEFF) were prepared with 3g/mL concentrations. *In-vitro* antioxidant activity of the concentration gradients of each extract were evaluated by using a DPPH assay. Ascorbic acid (6.25 μg/mL- 25 μg/mL) was used as a positive control. The radical scavenging activity of test samples was expressed as an EC_{50},which is defined as the mean concentration of the antioxidant required to lower the initial DPPH concentration by 50% in each experiment. It was determined by using the graph plotted with the mean concentration of triplicates of each test sample vs. the percentage of radical scavenging activity. The fresh hot aqueous extract showed antioxidant activity with an EC_{50} value of 10.92 μg/mL, 22.10μg/mL, 23.76 μg/mL and 27.38 μg/mL for leaves, flowers, roots and stems respectively. The ascorbic acid showed an EC_{50} value of 13.40 μg/mL. In conclusion, the present findings provided scientific evidence for the in-vitro antioxidant properties of the different fresh parts of *A. cathartica*. Further, the results showed that AFEL has a significant ($p < 0.05$) antioxidant potential than AEFR, AEFS and AEFF. Hence, fresh leaves of *A. cathartica* have been identified as the most potential part for antioxidant activity among tested plant parts.

Keywords: *Allamanda cathartica*, antioxidant, Wel Rukaththana

Knowledge, Attitudes and Practices on Dietary Supplements among Allied Health Science Undergraduates of Sri Lanka

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Abstract

In the modern world there is a huge increasement in dietary consumption without proper consultation and many have encountered with adverse effects after usage. There has been no significant research conducted on dietary supplement usage among Allied Health Science undergraduates in Sri Lanka. In this descriptive cross-sectional study, knowledge, attitudes, and practices about dietary supplements were assessed among five Allied Health Science faculty undergraduates in Sri Lanka using a structured, self-administered questionnaire. According to the results obtained, the overall prevalence of dietary supplement usage in Allied Health Science undergraduates was 63.8%. Females were more likely to participate in this survey than males and have used dietary supplements. Gaining missing nutrients was the most common reason for using dietary supplements (91.2%). Multivitamins and minerals were the most frequently reported supplements with 86.7%, followed by fish oil with 84.5%, beauty ingredients added supplements with 77.4%, weight loss supplements with 75.2%, and protein/amino acids with 70.4%. Among undergraduates, there was widespread use of internet-driven, self-prescribed dietary supplement intake (95.1%). The significant number of undergraduates were used the same dietary products as their family members (79.2%). Only 67.3% who were used dietary supplements seek medical advice from doctors, pharmacists, or dietitians. The obtained research findings will be used to enhance the knowledge, attitudes, and practices on dietary supplements in society along with their benefits and adverse effects. This study can also be used to provide background knowledge to future researchers.

Keywords: Undergraduates, dietary supplements, multivitamins

Preliminary Study on Knowledge, Attitudes and Practices on Selling over the Counter Oral Medicines by Pharmacy Workers in Colombo District

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Over-the-counter medicine is also known as OTC or nonprescription medicine. Although, OTC can be bought without prescription, self-medication and overusing the medications can cause many side effects. Hence, responsible selling of drugs with recommendations on proper and safe use, is a key role of the pharmacists and other workers at the pharmacies. Aim of this study was to investigate knowledge, attitude, and practice toward selling of oral-medication by pharmacy workers in Colombo district. A descriptive cross-sectional survey was performed among pharmacy workers in Colombo district (N= 100) including pharmacists and non-pharmacists using a structured questionnaire. The ethics clearance was obtained from Ethics Review Committee, CINEC Campus. There were 45 males and 55 females. Among the total participants 15 % were pharmacists, 37 % were assistant pharmacists and 48 % were supporting workers in the pharmacy. Although paracetamol is an over the counter drug which is commonly sell in the pharmacies, only 42 % of the participants know the adults' maximum daily dose as 4 g/day. Remain 58 % did not aware about the correct daily dose for paracetamol and among those 13.79 % are pharmacists. Remain 25.86% are pharmacy assistants and 60.34% are other supportive staff. Further, 86 % of the participants were know that antacid should take 30 minutes before the meal to get effective action and 14 % were not aware. Out of this 14.28%, 35.71 % and 50 % are pharmacists, pharmacy assistants and other supportive staff respectively. There was absence of pharmacists who do not know maximum daily dose of paracetamol or patient advice of antacids. Although, antibiotics are not OTC medicine 17 % are disagreed with the statement of "Antibiotics should not dispense for common cold on patient demands". Among the participants, 47 % are believing pharmacist are only responsible to dispense and counsel the patients on drug prescribed by physicians. Although, 44 % of participants never issued non-OTC medicine without a prescription, 48 % issued in sometimes. Further, 8 % mentioned they always issued non-OTC medicine without a prescription. As the results showed that, some the workers are still not aware about the correct information regarding the OTC, it is concluded some of they require further knowledge on that.

Keywords: Over-the-counter medicine, OTC, paracetamol

A Comparative Study on the Protein Content and the Trypsin Inhibitory Activity of Traditional and Improved Rice Varieties in Sri Lanka

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Abstract

There are few types of traditional rice varieties are available in Sri Lanka. Following the introduction of genetic engineering for the crop products, several improved rice verities were developed by Bathalagoda Rice Research and Development Institute (RRDI), Sri Lanka with the purpose of providing high yield. However, there is a belief among folk that the Traditional Rice Varieties (TRV) are rich in nutrients especially in proteins, compared to the Improved Rice Varieties (IRV). Apart from that, there is a concern on the increment of proteinaceous anti nutrients content, known as trypsin inhibitors with the increment of protein content. Therefore, the current study was designed to evaluate the protein content and the Trypsin Inhibitory Activity (TIA) of selected TRV and IRV available in Sri Lanka. Ten TRV and ten IRV were collected from RRDI, Sri Lanka. Aqueous extract of each variety was prepared and assessed for total protein content by the method described by Bradford (1976) with slight modifications and screened for the TIA by the method explained by Kunitz (1947) with some alterations. The protein content of TRV known as Pokkali, Pachchaperumal, Kalu Heenati, Kahawanu, Sudu Heenati, Murungakkayan, Beheth Heenati, Suduru Samba, Madathawalu and Suwadel was 4.63±0.26, 4.80±0.23, 3.58±0.20, 2.18±0.19, 2.60±0.17, 2.18±0.12, 3.10±0.34, 2.02±0.21, 1.53±0.10 and 0.86±0.16 (mg/g) respectively. The observed protein content of the IRV named BG-450, BG-379-2, BG-359, BG-3-5, BG-310, BG-252, BG-360, BG-300, BG-374 and BG-352 was 0.90±0.12, 0.22±0.05, 0.21±0.06, 0.12±0.05, 0.86±0.07, 0.13±0.03, 0.17±0.06, 0.30±0.10, 0.69±0.08 and 0.36±0.05 (mg/g) respectively. Interestingly, it was observed that all the tested TRV as well as IRV did not exhibit significant TIA. The results of the present study revealed that, the TRV contain comparatively higher protein content than the IRV. However, along with the protein content increment, there is no significant enhancement of the content of trypsin inhibitors in TRV, reflecting the suitability of their routine consumption.

Keywords: Protein content, anti-nutrient, trypsin inhibitors, rice

Preliminary Study for Evaluate Anti-nociceptive Effect of Novel Herbal Ointment "Jivadah"

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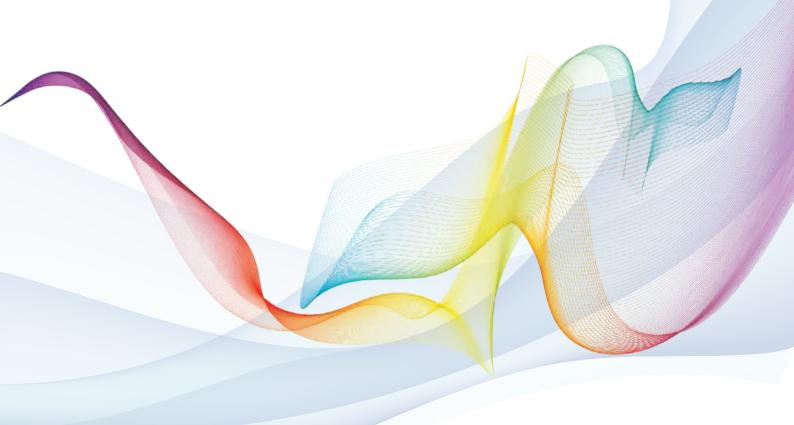
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Abstract

Chronic inflammatory diseases such as arthritis have been identified as a leading cause of disability and chronic pain. Management of pain is vital, together with anti-inflammatory treatments to improve patients' quality of life. As a result of adverse side effects caused by an existing allopathic analgesic agent, the investigation of the efficacy of plant-based drugs has been seen as a fruitful research strategy in searching for new alternatives. "Jivadah" is a novel herbal ointment made by Fairway Biotech (Pvt) Ltd, Sri Lanka consisting ingredients that have already been proven for anti-inflammatory action, i.e., extracts of *Areca catechu* (arecanut), *Alpinia galanga* (mahaarattha) rhizome and capsaicin (from *Capsicum annum;* green chilies), menthol and camphor. The study aimed to evaluate the anti-nociceptive activity of "Jivadah" on the acetic acid-induced writhing test model. Ethical clearance for the animal study was obtained from the Ethics Review Committee of the University of Sri Jayewardenepura (MLS/08/18). The test Wistar rat group (n=6/group) was applied with the test herbal ointment and the control group (n=6/group) was treated with the vehicle. After 30 minutes, the writhes were induced by administering 10 mL kg-1 b. w. of acetic acid solution (0.6% v/v) in normal saline, intraperitoneally. After two minutes of acetic acid injection, the rats were observed through a transparent box and then the number of writhes was counted for 20 consecutive minutes. The writhing movements were measured as abdominal muscle contraction accompanied by stretching the hind limbs. The average number of writhes in the test group was 25.67 ± 1and it was 43.55 ± 2 in the negative control group. The test group significantly inhibited the number of writhes by 41.86 % (p<0.001) compared to the negative control group. Hence, the present study has demonstrated that the novel herbal ointment "Jivadah" has antinociceptive activity, which may be contributing to the anti-inflammatory activity observed earlier.

Keywords: herbal ointment, anti-nociceptive, "Jivadah"

"SAILING THROUGH DYNAMIC CHALLENGES WITH KNOWLEDGE AND DISCIPLINE TOWARDS EXCELLENCE AND SUPERIORITY"

FACULTY OF MARINE ENGINEERING & FACULTY OF MARITIME SCIENCES

Introducing Sensor Testing Device for Unmanned Ship

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Abstract

The Engine rooms always fill with complicated machinery, and it constantly tends to ingress water due to leaks or a crack in the pipe or hull of the ship. The purpose of introducing this equipment is to monitor the status of the floater in advance and get a reading about the bilge conditions in an unmanned ship without human force. The study considered three sections when defining the methodology namely, mechanical section, pneumatic section, and electronic section. The material should be rigid, light weighted, and must not get rusted due to long term usage in the engine room condition. Aluminum alloy will be selected to satisfy above conditions. Welding will be done using the Tungsten inert gas welding method. Tray and extended arms will be connected to the equipment using welding. A typical two-way piston will be modified to indicate the position of the piston using two IR detectors in the top dead Centre and the bottom dead center. The piston crown will be plated with copper. A conductivity meter will be used to analyze the water quality of the bilge. A conductivity meter will be calibrated to identify different conductivities of seawater, freshwater, and diesel oil. Software section made do consideration about the material used in the process as it should be rigid, light weighted, and must not get rusted due to long term usage in the engine room condition. The study revealed that during the operation, mild hot water fills in bilge wells during hot water leakages. Aluminum has shown some reliable results even exposing to hot water for periods. Regardless of the concentration of salts the temperature of the seawater is another factor that affects the conductivity. Different sea areas got different salinities, but all these samples show that the temperature is directly proportional to the conductivity of the seawater. It also suggests that temperature affects the conductivity of the liquids remarkably. Through the increments of the conductivity present, the seawater and freshwater readings are having big margins. Pure diesel oil conductivity is not visible most of the time, but with the addition of other carbon nanomaterials, the conductivity may be slightly visible. The study suggests that diesel oil(pure), fresh water(domestic), and seawater are having different conductivity ranges though they show some increment of conductivity with the rise of temperature turns into a disaster.

Keywords: Sensor Testing Device, Unmanned Ship, Engine room, Seawater

The Mechanism of Identifying the Unsought Leakage of Sewage System in a Merchant Vessel

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Abstract

The sewage system of containership is a vital system under MARPOL which is designed to remove pollutants from sewage water via treatment process before releasing it from the vessel to the sea. The researcher identified on a particular sailing that the daily domestic freshwater consumption was absolutely abnormal, and it is beyond the par level and noticed a discernible leakage in a specific occasion of a sailing. The aim of this study is to identify the mechanism of unsought leakage of sewage system in a merchant vessel. Routing check-up and monitoring checkpoints serve as a framework of the methodology of this study. At the primary stage, all systems in the engine room were observed including bilge tank levels, Purifier sludge tank level, Cooling water systems, water drains and fresh water consuming spots and deck, galley, bridge in order to locate the leakage and accommodation area. Frequent check-up and monitoring led to identify the leakage in the hospital toilet flushing system. The findings of the study are discharge pump was in auto mode and when sewage discharging overboard de-chlorination chemical is injecting all the time and the quantity of chemical keep within the limits. But parts per million is within the limits and total discharge of chemical abnormally increased. The recommendation of the study is Stop water supply to the hospital toilet flushing system by closing manual valves, check the sewage discharge pump change over from auto to manual mode avoid such instances during the sail. At the same time carry out a stern watch keeping and make it a best practice in the daily routine checks in case of the sewage discharge pump need to monitor the start/stop frequency and it could identify at the initial stage to fix such an instrument and measure the total quantity of daily discharge of water and chemical volumes.

Keywords: Freshwater Consumption, Sewage System, Hospital Toilet Flashing System, Discharge Pump

Development of Mechanism to Increase the Seafarers to Attract Foreign Exchange to Sri Lanka

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Abstract

The person who is employed on a ship, or a craft engaged in sea transportation is called a seafarer. Recruiting seafarers and deploying them on foreign ships will lead to substantial amount of foreign exchange to Sri Lanka (SL). Except for few ad-hoc approaches in the past by state sector the crew management and seafarer recruiting companies are promoting this business at individual level only. This cannot deliver results by taking due advantage of both comparative and comparative advantages being an island nation. The study aims to develop a mechanism to raise the present the foreign exchange earning to SL by way of seafarer wages is estimated to be USD 350 million per annum and with the other connected foreign income by way of air travel/hotel accommodation, medical charges and agency fees, this figure increases to USD 500 million per annum. The above project to increase the active seafarers to 50000 will increase the foreign earnings to over USD 1.5 billion per annum. The study recommends that, government must promote seafaring business with the diplomatic missions in countries like Japan, Germany, South Korea, Greece, China, and Norway who are top ship owning countries in the world. It should be a consistent and well-planned approach combing with private sector involved in the seafarer manning industry. It needs regular discussions with industry stake holders to gain ideas, formulate plans and resolve existing problems / challenges / bottlenecks preventing expansion of the seafaring industry. Since the government has limitations and the present environment does not attract many investors easily, projects of this nature need to be encouraged and supported without a delay. Obtaining Continuous Discharge Certificate (CDC) should be made more flexible and the right focus and sustainable policy framework to be introduced on priority.

Keywords: Sea Farers, Foreign Exchange, Sea Faring Business, Industry Stakeholders

Mathematical Model to Resolve Global Maritime Container Inventory Imbalance Problem

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Abstract

Container inventory imbalance can be explained as the gap between the exporters' recurring demand for containers and the carriers' ability to supply. The proposition of this paper is aimed at the resolution of the problem of container inventory imbalance. This research found the container inventory management (CIM) strategies currently practiced by carriers has been unsatisfactory leading to a 50% share of empty containers as a percentage of total container throughputs. The research approach of this paper is tri faceted combining opinion survey, desk research and a questionnaire survey. The outcome of the research leads to a smart market model to support trading of unallocated container storage space in a carrier among shipping lines through a benefit-maximizing optimization. The model is used to calculate the number of containers to be exchanged among liner carriers in order to balance the excess and deficit of the containers while maximizing the benefit. This model considers the benefit maximization as the objective, while arc capacity, market limit and stock balancing are considered as restrictions. Depending on the sign of the benefit value, the direction of the transfer can be decided. The benefit acquired by the transfers of the containers will be balanced at the end of the considered period and liner carriers will be benefited from this as it is possible for them to reduce unnecessary costs of container exchange. The paper points to a 19% saving through VCP against the current shipping cost based on this mathematical model. It is expected that these findings will have significant implications in global container inventory management leading to greener transport system.

Keywords: Container Inventory Management, Optimization, Maximization

A Critical Analysis of Tourism Stakeholders' Perception on the Development of Cruise Tourism Industry in Sri Lanka

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Abstract

Cruise Tourism is a very identical market in the Global travel sector which is having a higher growth rate nevertheless a Niche market in Tourism Industry of Sri Lanka with a high potential growth and developing aspects.The purpose of this study was to investigate the tourism stakeholders' perception on the development of Cruise tourism industry of Sri Lanka.This research was based upon the collection of data through online questionnaire survey with tourism stakeholders. This particular case was conducted with quantitative research method. Statistical information obtained from 130 respondents were analyzed was processed with MS Excel software, SPSS and data analyzed using demographic data analysis, factor analysis, correlation analysis and regression analysis.According to the study 16 sub-factors of determinants of the cruise tourism development were identified through literature surveys. As per to the perception of the stakeholders' the determined factors were identified as very significant to extremely significant towards development of Cruise tourism in Sri Lanka.The most important cruise tourism development determinant was Port Infrastructure and addressing the investments on port infrastructure will improve and accelerate the cruise tourism development rate. Further six main determinants of cruise tourism development factors which were; shore tourist attraction, ports, port management, cruise tourism alliances, image of tourist attraction and shore excursion management and services were ranked higher according to the perception of the tourism stakeholders', therefore and those factors were highly impact on the development of cruise tourism in Sri Lanka which will enhance the development of the industry and fill the gaps in growing and shortages.These factors will ensure and safeguard the development of the cruise industry by being the foundation for it.All the independent variables had a positive significant relationship with cruise tourism development factors as per the perception of the stakeholders' which will direct the development process with proper directions to gain the competitive advantage of cruise tourism industry in Asian region.The positive significant relationship will illustrate the developing aspects of the cruise industry and enhance the over-roll development of it. Recommendations that were provided at the final part of the research concentrates on improving infrastructure and institutional framework ,public -private partnership for the development and well-coordinated approach a long with marketing activities, which are critical to recruiting additional passengers and ships benefit from joint efforts by stakeholders for the development of Cruise Tourism for future forward.

Keywords : Cruise Tourism, Tourism Stakeholders, Perception , Development of Cruise Industry, Sri Lanka

"EMPLOYING CURRENT TRENDS IN EDUCATION FOR SUSTAINABLE DEVELOPMENT: THE ROLE OF HUMANITIES AND EDUCATION"

FACULTY OF HUMANITIES & EDUCATION

Significance of English Language Skills among Pharmaceutical Students in Colombo District

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Abstract

In any given English for Specific Purposes (ESP) course, it is paramount to understand and familiarize oneself with the ESP population one plans on studying and evaluating. Therefore, conducting a needs assessment for the selected ESP population will help students understand the needed requirements and capacities that entail determining which purposes the specific population would use English in their specific field of academia or profession. Consequently, the main objective of this research was to ascertain the needs and requirements of the English language among 30 pharmaceutical students that are discovered by using the convenient sampling method in Colombo district. The methodology consisted of a quantitative analysis where the respondents were provided a self-administered questionnaire that included multiple choice questions checking the respondents' competency levels to proceed on. A typical needs assessment designed for an ESP course would focus on the language skills used such as reading, writing, speaking, listening and all the soft skills. Therefore, the respondents had to self- evaluate their current English language knowledge, their current language proficiency, the statistics of their language in need of academic purposes, and the requirements and elements that influence how learners understand the language areas accordingly. As a result, based on the data collected by the needs assessment, the conclusion is made that majority of the students apprehended that all the skills are significantly demanded including the soft skills in their curriculum. Similarly, the insights drawn from analysing the data of the needs assessment can be used in proving theories, disproving some, debunking certain cultural stereotypes regarding the population, and also better understanding the selected pharmaceutical students.

Keywords: English for Specific Purposes (ESP), Language Proficiency, Needs Assessment, Pharmaceutical, English Language

Decline of Female Representation in G.C.E. (Ordinary Level) English Literature Curriculum's Novel Selections from 2007 to 2015

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Abstract

The G.C.E. (Ordinary Level) examination is an important summative examination a student must complete in Sri Lanka. A student can choose to learn English Literature, or Appreciation of English Literary Texts as it is officially called, for the examination. The most recent changes to the subject's curriculum were in 2007 and 2015. In accordance with the United Nation's Sustainable Development Goal Number 5, Gender Equality, the curriculum must incorporate literary works by women and/or contextually present authentic female experiences to better represent women. Even though that is the case, there is a visible decline in female representation from 2007 to 2015 in the curricula's novel genre. Therefore this study attempts to break down this decline in two parts: quantifiable data gathering and contextually analyzing the prescribed novels. The novels Jane Eyre and Village by the Sea from the 2007 curriculum, along with The Prince and the Pauper, The Vendor of Sweets and Bringing Tony Home presented in 2015 were thoroughly studied for the contextual analysis. The novels of the 2007 curriculum contained more authentic and positive female characters than in the 2015 curriculum where the female characters proved to be negatively presented or had no development within the plot. To get quantifiable data, a Google Form was created and circulated to English Literature students who learnt or are still learning the subject. After sixty responses, the form was taken down to gather data. The respondents were more satisfied with the female characters presented in the 2007 curriculum than they were in the 2015 curriculum. The audience was also able to relate more to the novels of the 2007 curriculum than their 2015 counterparts. Thus, the study proves that there is a lack of female representation in the 2015 curriculum.

Keywords: Female representation, Sustainable Development Goals, English Literature, Curriculum, G.C.E. (Ordinary Level)

Needs Analysis for Career Guidance Including Guidance for Higher Education and Professional Development for Students in Sri Lanka

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Abstract

For decades, most Sri Lankan students have struggled with decision making especially transitioning from secondary to higher education or professional development due to a lack of guidance which resulted in difficulty establishing solid careers until their late 20s. This study investigates and provides a needs analysis for a proper system for the guidance for higher education, professional and career development for students in Sri Lanka. As the methodology to test the hypothesis, an online survey via a google form was distributed to a sample of 50 students, aged 18-28 years, following different courses in selected universities in Sri Lanka. In addition, one-on-one interviews were held with randomly selected students within the age limit. The data gathered from the survey and interviews reveal their plans for education and career paths, support and guidance received through the decision-making phase, factors that influenced/ caused them to make the relevant decisions, their skills, abilities and interests, and history of the education/ career path. The results suggest that students are poorly informed and/or have limited knowledge about suitable paths and opportunities as the majority of the educational institutions have no professionals and/ or resources that can provide guidance about current academic pathways and career prospects. Accordingly, the results show that most students feel lost in the process of decision-making: to develop the connection among their skills/ interests, academic path, career path and future expectations without proper support and guidance. The analysis of the results substantiates that career guidance including guidance for higher education and professional development, which is a current trend in most countries, is a significant loophole in our education system that still depends on traditional methods. Seeing that it is globally identified as a vital part of bridging education and profession, this may have affected the sustainability of the workforce in Sri Lanka.

Keywords: Career, guidance, higher education, professional development, young

Perceptions of the Undergraduates of the Faculty of Management on Using Zoom in Higher Education: With Special Reference to CINEC Campus, Malabe

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Abstract

With the emergence of Covid 19 pandemic, the education system was forced to move from face-to-face learning to remote learning. Most of the schools, universities and educational institutes used Zoom online platform as the method of teaching and learning. Even in 2022, due to the ongoing economic crisis in Sri Lanka, students are forced to continue learning using Zoom. Hence, the study mainly attempts to investigate students' perceptions and attitudes towards the use of Zoom in learning and how it impacts on students' learning engagement in comparison to face to face learning. This study was conducted with a randomly selected sample of 30 undergraduates of Bachelor of Management in Supply Chain Management at CINEC Campus, Malabe. A questionnaire in Likert scale was given to gather students' attitudes about Zoom, students' attitudes about the impact of using Zoom and students' perception on face-to-face learning and remote learning. According to the analysis of the collected data, the majority of the students stated a negative attitude towards online learning and learning via Zoom has made a negative impact on their learning as well. Furthermore, they stated that their motivation to learn via Zoom negatively impact on their learning. They further mentioned that their involvement in the lesson is also decreased and they lose the opportunity to do practical sessions by learning via Zoom. Moreover, the undergraduates revealed that the monthly expenditure is unbearable for them as internet bill costs a huge amount of money. Thus, this study recommends the higher education institutes to maintain more interactions during online lectures considering the participants' level of dissatisfaction on online learning. Finally, it can be emphasized that blended learning would help in providing a rigorous learning environment.

Keywords: Zoom, Face to face learning, Online learning, Higher education, Perception,

A Freudian - Jungian Psychoanalytical Approach Towards Alec and Angel in Thomas Hardy's Tess of the D'Urbervilles.

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Abstract

Sigmund Freud, who is considered as the father of psychoanalysis, developed a hypothesis that an individual must successfully develop in five distinct stages to become a psychologically healthy adult with fully formed Ego and Super Ego, otherwise becoming "fixated" individuals with emotional and behavioural problems in adulthood. Freud's student Carl Jung who continued Freud's work in an altered form came up with a more analytical approach towards psychology different to Freud's hypothesis. In particular to Hardy's novel in consideration; Tess of the D'Urbervilles, it can be noted that the two contrasting male figures in the novel demonstrate deficiencies in their respective psychological behaviours. Even though many studies provide insight into the novel's tragic heroine's psychoanalysis, there's a visible lack of a comprehensive psychoanalysis of the two male protagonists. This study is aimed at bridging the research gap while proving the psychological deficiencies of both men with regard to a Freudian- Jungian psychoanalytical approach. Alec and Angel who come from different socioeconomic backgrounds and consequently different environments and family values, both play a decisive role in the tragic fate of Tess. Hence, it can be identified how their pasts play a crucial part in their treatment towards Tess, thus bringing out Freud's five psychosexual stages of development, specifically in light of anal, latency and genital stages. Also, Angel's seemingly visible borderline personality disorder and Alec's sociopathic and hedonistic behaviour confirm of a Jungian psychology of "a nature and purpose of the libido", "nature of the unconscious" as well as "causes of behaviour". The qualitative data gathered with careful character analysis as well as literature reviews of the abovementioned theories and hypotheses, it can be concluded that both Angel and Alec demonstrate a lack of psychosexual development of a healthy adult.

Keywords: Freud, Jung, psychoanalysis, Hardy, socio-economic background, psychosexual Development

A Discourse Analysis of the English Movie "The Chronicles of Narnia: the Lion, the Witch and the Wardrobe" Using Austin and Searle's Speech Act Theory

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Abstract

In the world of Pragmatics and discourse analysis, which deals with language usage within spoken context to not only convey meaning but also to perform certain actions, Speech acts play a crucial role. J. L. Austin an Oxford philosopher first put forward the "Speech act theory" which was further studied and developed by J.R. Searle. This paper aims at analysing utterances taken from the blockbuster film "The Chronicles of Narnia: The Lion, the Witch and the Wardrobe" directed by Andrew Adamson, in order to determine and reason out as to why a certain utterance falls under direct or indirect speech acts. Correspondingly, 30 utterances from the movie were randomly chosen and transcribed. The utterances were first classified into different types of illocutionary speech acts (expressive, directives, questions, comissives, expressive, declarations) in accordance with Austin and Searle's "Speech Act Theory". The utterances were then separated and tabulated into direct and indirect speech acts. The final stage of the analysis reasons out as to why the utterances fall under direct or indirect speech acts based on the three criteria: relationship between sentence type and illocutionary forces, presence or absence of performative verbs, and felicity conditions. The results validate Austin's and Searle's notion on how words carry out action and depicts how language can have direct or indirect implications, providing an insight to understanding a language.

Keywords: Speech act theory, pragmatics, discourse analysis, illocutionary acts, direct speech acts, indirect speech acts, felicity conditions

Sri Lankan Secondary School Teachers' Attitudes and Perceptions Regarding Student Mental Illnesses and Mental Health Support

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Abstract

Misconceptions regarding mental illnesses in developing countries originate from preconceived notions and public stigma, which are perpetuated by the absence of mental health education among the general public. In Sri Lanka, students are likely to be influenced by their teachers' attitudes toward mental illnesses, and thus, some may remain unaware of the consequences which arise from neglecting their mental health. Based on the consensus that mental health awareness programmes in schools are a necessity, this study had two objectives: (a) to understand the attitudes and perceptions of secondary school teachers in government schools toward student mental illnesses, and (b) to gain insight into the teachers' views regarding suitable methods of mental health support for students. The methodology consisted of a quantitative analysis, wherein 45 secondary school teachers from government schools situated in Colombo were selected using convenience sampling. A Google questionnaire comprising open-ended and closed-ended questions was distributed among the participants, thus granting them an opportunity to share their insights. Graphical representations of the generated data revealed that the majority are aware of the stigmatization of mental health in Sri Lanka, with many claiming that support for students with mental illnesses is severely lacking. Descriptive statistics relating to the perceptions and attitudes of the participants disclosed that the majority are willing to provide support to mentally ill students. They maintained that the school must introduce school-based mental health services and conduct workshops to educate students and parents on the importance of mental health. The conclusions derived from the study identified that the attitudes and perceptions of the participants toward mentally ill students were favourable, with many exhibiting a willingness to talk to their students about their problems while working toward destigmatizing mental health in government schools.

Keywords: Student mental illnesses, Attitudes, Perceptions, Mental health support.

The Effect of Linguistic Hegemony within the Sri Lankan School Education System on Current Language Learning Trends among Youth

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Abstract

Although both Sinhala and Tamil have been enacted as the official languages constitutionally, the school education system in Sri Lanka seems to signal hegemonic language teaching practices. The main objective of this research was to investigate whether the Sri Lankan school education system has had a direct effect on youth representing the ethnolinguistic majority in terms of their perspectives on the role that a minority language like Tamil plays as an official language. A sample population of 40 youth respondents belonging to the ethnolinguistic majority, whose vernacular is Sinhala and the second language is English, was selected for this experimental study. The methodology included a quantitative analysis of data collected via an online questionnaire, where factors including respondents' schooling background, language learning interests and awareness on the importance of learning Tamil were evaluated. The majority self-evaluated their proficiency in English to be good while less than 30% stated the same regarding Tamil. Based on the quantitative analysis, teacher encouragement to learn Tamil was considerably low which is further supported by most respondents claiming English and Mathematics to be their highly prioritized subjects at school level. Respondents' current language learning trends rated on a Likert scale demonstrated that the majority were rarely interested in learning Tamil. Several lacked awareness on the national significance of Tamil as an official language. These findings prove that language teaching objectives within the Sri Lankan school education system are substantially driven by the linguistic hegemony which presides over English and Sinhala as the lingua franca and the majority's dominant language, respectively; which in turn, instigates a ripple effect on youth learning goals, and thus, the declining interest in learning Tamil among youth belonging to the ethnolinguistic majority of Sri Lanka. Although schools have incorporated Tamil in the curriculum, it is recommended that further awareness on the sociocultural value of practicing both official languages beyond school education is emphasized in the teaching methodology.

Keywords: Linguistic hegemony, current language learning trends, language inequality, ethnolinguistic disparities, Sri Lankan school education system

Jane Austen's Representation of Men and Austenian Wit's Influence on the Delineation of Masculine Identities in the Novel 'Pride and Prejudice'

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Abstract

This study aims to examine the character portrayals of men in Jane Austen's most renowned novel, 'Pride and Prejudice.' Austen's versatility in incorporating wit when molding character profiles of diverse personas with distinct personalities, is the most prominent feature within her works. Through 'Pride and Prejudice', Austen showcases an acute and realistic account of men who typify the Victorian society's bourgeois class. Thus, this study provides an in-depth analysis of the delineations of the characters who represent two generations such as Mr. Bennet, Mr Darcy, Mr. Bingley , Mr Collins and Mr. Wickham. In addition, the writer's remarks, narratives presented by other characters, men's outlook towards the world as well as the society, their behaviour patterns and their verbal exchanges have been chosen from the three volumes of the novel, in order to further analyse the masculine identities. Moreover, both the way a man presents himself to the society and a third party's viewpoint about his disposition have been given attention by this study. Hence, the results of this study suggest that men in Victorian society are not as perfect as the society claimed them to be. Austen's well-formed arguments and criticisms emphasize her dexterous attempt to validate the fact that all character's despite of their positive human traits are grey in colour and thus, are flawed in nature. Further, this study identifies the patriarchal values that the society upholds, and the social niceties instilled in the minds of men as root causes behind a man's outlook towards the world. Besides, the presence of wit intensifies the criticisms that are directed towards men. Therefore, the study ends with the conclusion that men in 'Pride and Prejudice' are no better than women in 'Pride and Prejudice', as both genders are flawed.

Keywords: Pride and Prejudice, Masculine identity, Wit, Jane Austen.

Effective symbolism and the portrayal of the Great Depression in the USA in 1930s emerged in the memory play, "Glass Menagerie by Tennessee Williams

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Abstract

This study illuminates the path to understand the effective symbolism and the portrayal of the Great Depression in the USA in 1930s emerged in the memory play, "Glass Menagerie" by the American playwright Tennessee Williams. It has been presented as a memory play providing a torch to the audience to move across memories from the present to the past. In fact the study is preceded with the primary data associated the drama and the secondary resources based on the Great Depression in 1930s caused by the overall economic downfall in the USA. This provides a broad discussion on identified main features of great depression such as unprecedented economic crisis, unemployment, tremendous social and psychological impact while employing the technique symbolism to sharpen the core concern of penning the drama. While the popular investigations discuss about the associated solid materialistic symbols, the plight of the women in the male dominant American society in 1930s is portrayed with the effective symbolical characters such as Amanda and Laura in the play as the finding of this study. Since a vast audience gathered around the play when it was premiering in 1944, Williams could socialize his depressed intentions against the backdrop of the socio economic circumstances in contemporary America. Even now, the play seems to be a journal for those who seek the information about the Great Depression of the USA in 1930s and its social impact.

Keywords: Glass Menagerie, Symbolism, Great Depression, USA, plight of women

Computer-Based Language Learning Integrated with Language Games Enhances the Retention of Vocabulary in Second Language Learners

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Abstract

Technology is an inevitable source that has immensely contributed to carry out the teaching learning process especially during the Covid pandemic. Therefore, computer-based language learning (CALL) has become one of the most prominent methods used over the past few years. In second language acquisition, learning vocabulary is one of the major skills pivotal in producing a competent language learner. Many researchers have investigated on the impact of games as a technique of second language acquisition. Accordingly, this research demonstrates how language games enhance the retention of vocabulary of the L2 learners when integrated with CALL. The aim of this study is to encourage teachers to facilitate CALL, when teaching vocabulary through games for the L2 learners as well as to motivate second language learners to interact with CALL while interacting with language games. Quantitative method is used as the research methodology throughout the entire research study. Accordingly, 50 students of grade 3 were chosen from a government school in Kandy and simple random sampling is used to select two samples as controlled group and experimental group. Accordingly, the experimental group was taught with language games integrated with CALL and the control group was taught the same vocabulary lesson through CALL without using games as a technique. A Pre-test and a post-test are used as research instruments to identify the impact on retention of the vocabulary for the L2 learners. After analyzing the results of the tests, the mean score of experimental group was considerably higher than the control group. Therefore, the study validates that there is a significant impact on the retention of the vocabulary in L2 learners when games are integrated with CALL. For further research, it is recommended to study how the hand-eye coordination in computer-based language learning enhances the brain activation throughout the process of language acquisition.

Keywords: Computer-Based Language Learning, Language Games

Child Abuse Incidents in Schools of North-Western Province Sri Lanka: A Case Study in XYZ School Kuliyapitiya

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Abstract

Child abuse is all harm or threatened harm that affects the well-being of children under the age of 18. A number of child abuse cases have been reported in the schools of Sri Lanka. such as emotional violence, ill treatment, sexual abuse, and neglect. The education level of children in the northwestern province is very high. Therefore, child abuse is a hindrance to children's education. Thus, the objective of the research is to find out the weaknesses in the child protection system and find solutions for child abuse. This qualitative research was based on primary and secondary data. To find more information, the researcher used a child abuse incident at XYZ school as her case study. 15 educators, including 10 teachers and 5 administrative staff, were involved in the interviews using face-to-face conversations. The information that has been collected through interviews, articles, and secondary sources was organized and analyzed systematically using thematic analysis. The results of this study show that there is no systematic way to protect the child against abuse, and children trust adults to a greater extent, which is the main reason that leads to child abuse cases in this province. that the child who was subjected to this case study was on probation for three months. And the person who committed the abuse was imprisoned. The study concluded that the child protection authority should be systematic and programs should be organized for parents to inform about child abuse. the family, school, society, country, and the whole world have a responsibility to provide and protect children's rights. We have to stand up against child abuse, and it is our duty.

Keywords: Child abuse, Education, well-being

Student's Conflicts Management in ABC School

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Abstract

Conflict is a stern disagreement and it is a process that begins when one party perceives that another party has negatively affected, or is about to negatively affect, something that the first party cares about. However, Conflicts not been address and lack of proper training for teachers. The objective of the study is to identify the reasons of the conflict management in the school. Conflict cannot be stopped because it is an integral part of people's moral and emotional growth also, they exist in the schools. The various conflicts occur between students in the school. Therefore, the unity and support break down between each other. Which implies that teachers need to have skills to manage conflicts properly and it is a challenge for the teachers on top. Thus, the recognizing the diversity of school conflicts, identifying and presenting reasons for conflicts occurring inside and outside the classroom, as well as managing conflicts appropriately and constructively. The sample of the study size 50 school teachers (primary and secondary teachers). Questionnaire, surveys, documentary analysis was used as data collection instruments. According to the research findings, the reasons for conflicts occurring inside classroom and outside of the classroom has been diversified based on the way of how student involve in conflict, student differences, the strategies for conflict solution also differ. This study concluded that school teachers need to understand the reasons of conflicts. There should be an environment of harmony and peace among students inside or outside a classroom and conflicts should not adversely interfere with the teaching and learning process. It should be noted that need to develop the conflict management skills is emphasized during the initial training of teachers.

Keywords: Conflict, Diversity, Unity, Initial training

Challenges Faced By 21st Century Teacher – A Case Study

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Abstract

Teaching, a noble profession is an intimidating and challenging task. Classroom challenges are one of the adequate problems faced by teachers and good teacher has the courage to overcome all these challenges bravely. There is much researches on the skills of the 21st century teacher but few case studies on the challenges of 21st century teacher. The objective of this study is to identify the challenges faced by the teacher in the 21st century. Quantitative data were examined, as the tools we used to document evidence were a questionnaire administrated to 28 professional teachers in the primary and tertiary sectors of ABC school. The findings of the study are conferred through explanation of teacher's experiences.

Mainly focused on few themes, for example: environment, system, time. Significantly 60% of the teachers think time management is the most challenging thing and 15% believe digital literacy is the problem. 14% commented on the endless paper work problem. And only 11% believe lack of communication is a problem. In conclusion, the results identified challenges around lack of effective communication, time management, digital literacy, endless paper works. It was observed that there were well organized structures at tertiary sectors than primary sector.

Keywords: Challenges, 21st century teacher, primary, tertiary

The Most Preferred Traditional Literature Among the Students of Age 10 in Sujatha Vidyalaya, Nugegoda

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Abstract

For many good reasons, reading is encouraged and practiced among school students. Similarly, English teachers attempt to incorporate interesting and effective reading lessons in lesson plans according to the student's preferences. Thus, this research specifically identifies the most preferred traditional literature among the students of age 10 in the Primary school of Sujatha Vidyalaya, Nugegoda to support Sujatha teachers to understand students' desired reading genres to enhance their reading skills through lesson plans. Traditional literature means stories that have been passed down through generations that were initially told orally and written down later as fables, myths, folk tales, and fairy tales. The methodology consisted of a quantitative analysis where a simple random sample of 50 students from all 2 Sinhala medium and 4 English medium classes of grade 5 were questioned via a google survey questionnaire as the data collection method. They were questioned online to recognize the most preferred traditional literature among them and the rationale behind their selection. The results indicated that the majority (65.3%) prefer fairy tales within the fables, myths, legends, and folk tales but the minority (24.5%) select only folk tales. Further, the majority have stated that fairy tales are more interesting than non-fiction because students firmly believe that fiction develops creativity and opens their mind set to the imagination, moreover legends, and folk tales are difficult to read and understand, in fact, they are boring and less exciting. Also, the study found that 49 students from both mediums are interested in reading English books but only 1 student showed reluctance. Similarly, most students (93.9%) choose to read printed books than e-books online. Hence, the findings of the research concluded that school teachers can successfully integrate reading materials from fiction books more often to develop students' interest and reading skills, by inculcating them into their lesson plans.

Keywords: Famous, traditional, literature, Sujatha, Vidyalaya

English Language Needs of Business Management Undergraduates

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Abstract

This is a need analysis of Business Management undergraduates of Business Management at CINEC Campus, Sri Lanka. This small-scale research was done by using the responses given by undergraduates in Business Management. According to the need analysis, it is visible that their skills in English are good, but it is significant to encourage them to develop their skills. Different methodologies can be used to develop their skills in English during the process of learning and teaching process. Findings help the English course designers to make syllabi and learning materials according to their requirements. Due to covid19, we had to do the research as an online questionnaire. This is small-scale research with 50 respondents so the findings cannot be generalized. It is shown that there is a progression in their written and spoken communication. It is important to provide learning materials in a way that the students can improve their skills in the English Language. According to this survey, it is obvious that the population should improve proficiency in speaking, listening, and writing to be successful in their course and future career. Grammar and vocabulary are also important for their success in their future career. These undergraduates can improve their language skills by reading the news, articles, and journals that target their profession in English, watching business reports and programs on television and using social networking platforms, and interacting with the business community.

Keywords: Business, English, Language skills, Language proficiency

Illumination of the Female Characters through Noble Conduct in Distinct Conventions and Traditions: Nanda in Gamperaliya, Sita in Ramayana and Jane in Jane Eyre

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Abstract

The position of the woman despite of the cultural and social differences is confined to domesticity under the patriarchal society before and during the feminism emerge worldwide. They become home angels who are permitted to learn only womanly skills such as cooking, embroidery, cleaning, music. Thus, they impulsively outline their life under the domestic regime of the father, brothers and husband with inhibition of their own desires and visions. Based on this ideology, most of the writers across the world portray the woman characters in their literary work to highlight the true plight of the women. Yet, this study aims at analyzing the emerging female characters in literary masterpieces in three different cultural and social backgrounds who are agonized by conventions and traditions. But they are eventually revered, admired and cherished subjugating the hero of the story through their moral conduct. Thus, this study focuses on "Nanda" in Gamperaliya by Martin Wickremasinghe, "Sita" in Ramayana by Valmiki and "Jane" in Jane Eyre by Charlotte Bronte. The study presents the parallel qualities of the female characters, the oppression and suppression they undergo and the way they gain the admiration by the reader. The data is collected through comparative analysis and intensive reading to spotlight the way they achieve this regard. The data is analyzed based on the fundamentals of the feminist theory. The findings suggest that all the three characters are endowed with noble standards; uprightness, purity and esteem which enrich their life to illuminate at the end of the story subduing the male protagonists although they are subjugated by the masculine realm.

Keywords: Conventions and traditions, Noble standards, Female characters.

Innovative but Simple, Running in the Family is a Unique and Unorthodox Memoir

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Abstract

Running in the Family is an exceptional memoir written by the renowned Sri Lankan- born Canadian author and recipient of the Booker Prize, Mr. Michael Ondaatje. It is written in a unique, but simple writing style when compared with works of other authors and hence is unorthodox in many aspects. Its presentation, plot construction and character development are unconventional and the key issues the author addresses regarding his family and society are contrastingly portrayed. As an unorthodox memoir, it is innovative in its structure, with its chapters not inter-connected but rather, loosely knitted and casually put together. Furthermore, there is no clear protagonist in the memoir, instead, the author introduces two opposing characters, Mervyn Ondaatje, his father and Lalla Gratian, his maternal grandmother who serve as pivotal and crucial characters, with many stories knitted around them. The memoir not only consists of a vast amount of information about the Ondaatje family and their heritage in the Burgher community of Sri Lanka, but also showcases the other diverse communities who dwell in the island nation. It highlights the beauty of the country, as the author expertly portrays the typical Sri Lankan life style, as well as the myths and beliefs of the Sri Lankan people. In conclusion, Running in the Family is a creative and unassuming memoir by a skillful and talented author.

Keywords: Innovative in structure, simple in narration, unorthodox novel.

The Hardship of the Proletariats and Issues of Political Corruption and Dictatorship in Soviet Russia as Portrayed in Mother by Maxim Gorky

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Abstract

This study sheds on the themes of political corruption, dictatorship and struggle of the proletariats of Soviet Russia in the novel Mother by Maxim Gorky. It embodies powerful themes and suggestive events of social realism which perfectly illustrates the governmental corruption scenario and proletariats' revolt that are presented in the novel as a milestone work of Russian literature. The study aims to identify and interpret these in terms of understanding correct and proper social message generated in them through focused textual analysis. Gorky's main concern in the novel is to portray the differences between socialism and communism which are frequently incompatible. Gorky's socialist ideals connected the literary scenario with the new trend, social realism which is for all socialists who struggle against the power capitalists. Gorky's background and early involvement in revolutionary activities certainly have an impact on it The methodology is heavily reliant on a thorough textual analysis of Mother's center in order to find revolutionary ideas and incidents that support the novel's themes. The novel paints a heartbreaking picture of the miserable life of proletariats who receive little pay for their labor. They live life mechanically, like machines every week days and on the weekends they get busy and completely drowned in drinking and violence in and outside the home; 'Vlassov'.Its major victims are their wives;'Nilovna'. Also, authorities who exploit the worker's quality of life in the factories under the power of political corruption and dictatorship; 'kopek tax'. Though Gorky sets the story in a Soviet Russia at the turn of the twentieth century, the socialism emphasized in the novel is applicable to both regional and global contexts. Hence, the macro themes of governmental corruption, dictatorship and the sorrowful and gloomy lifestyle of factory workers that ultimately lead to the proletariats' battle successfully validate the working class social revolution in Maxim Gorky's Mother.

Keywords: Revolution, Socialism, Textual analysis, Proletariats.

Juxtaposition of Piyal and Nanda from Gamperaliya with Catherine and Heathcliff of Wuthering Heights

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Abstract

Martin Wickramasinghe is the iconic symbol and master pillar of Sinhala literature in Sri Lanka. According to the history of literature, most novels and films have been influenced by Western or other countries' literature, as research has shown. The main characters in both stories seem to flow in a similar manner. Both Piyal and Heathcliff are considered low-caste people. But Nanda and Catherine are considered high-caste women in society. Due to his caste and family background, Nanda cannot marry Piyal, despite her love for him. Similarly, Catherine doesn't marry Heathcliff because he doesn't suit her caste and family background. The stories began by describing the Koggala region of Sri Lanka and the Yorkshire region of London. Thus, the four parts of the main characters in these two novels can be analyzed qualitatively. The relationship between these characters, the family background of these characters, how Piyal and Heathcliff find money, loving only one woman unconditionally no matter how much money they have, and how Nanda and Catherine get sick because of love. This research concludes that Martin Wickramasinghe's Gamperaliya is based on Wuthering Heights. Piyal and Nanda are the shadows of Heathcliff and Catherine.

Keywords: Interpretation, equivalent, characters, shadows, novels.

Learning and Teaching New Skills through Selected Theories

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Abstract

Learning is a natural activity of any living organism. By birth, any creature has the capacity of learning by them-self and the capacity of teaching fundamental skis to their offspring as well. There are theories of learning introduced by researchers/scientists that explain how learning takes place. When people underwent learning theories, researcher was curious to see if people can try out whether the behaviour that is not inherited can be taught without direct teaching and whether it is possible to unlearn something already learnt. Researcher hypostasized teaching behaviour that is not inherited by the puppy as a handshake. Dogs have genetically programmed how to forage, hunt, procreate, raise offspring, get along in groups and defend themselves and find their homes. First, researcher analysed the full range of skills researcher want to teach & break it into small blocks to be introduced. To employ a mixture of two theories were "Classical Conditioning" of Ivan Pavlov's and Operant conditioning (instrumental conditioning) of B.F. Skinner to teach "New Skill" which was not inherited by a puppy.

Keywords: Inherit, Behaviour, Learning, Teaching

Modern Approaches for ICT Laboratory

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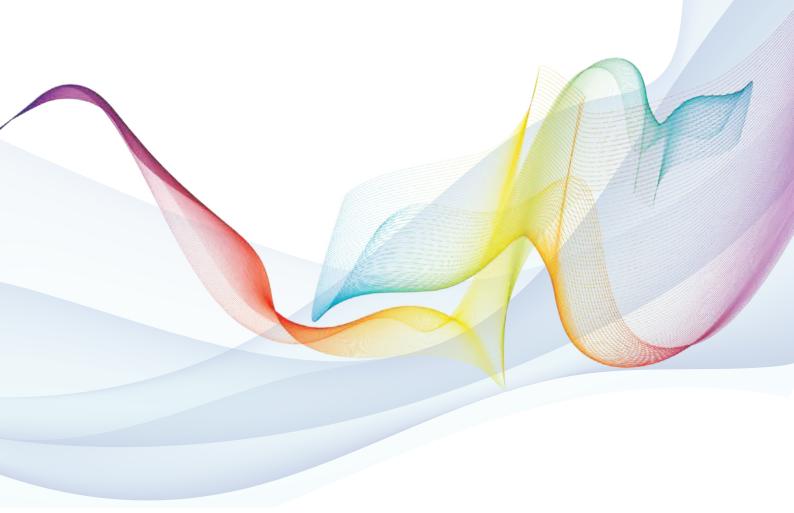
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Abstract

The new century introduced a significant change in instructive and teaching methods. The profession of the 20th century differs from the profession of the 21st century, there have been many changers in the development of national and international education. The research is going to creative laboratory only with ICT learning environment where the students can improve themselves. It will plan to create an ICT attractive environment which enhance learning ICT. This is the background reason for designing to create ICT laboratory. The students have little knowledge of ICT in Uva province. At present, new approaches are available in teaching ICT. They are supposed to be used to make and improvement in learning level. ABC school is a rural school near Badulla town. this school have less facilities to teaching and learning environment. Creating positive learning environment is essential for the success in the classroom as teachers. We should create a welcoming atmosphere where students feel safe and willing to share. Classrooms should represent the students equally and everyone should know each other. Moreover, unity and helpfulness of students should be improved within classroom. To achieve this aim, some specific objectives are follows; Improving student's achievement level their interest in learning and teaching in the ICT laboratory, Enhancing all students' motivation level in learning the subject during the period and Increasing students' involvement in activities and raising the level of creativity level up within the period. In this research, from the beginning to the end different methods will use to collect data about the problem, reasons for the problem and solutions that can be taken. Questionnaire, observation and interviews are the methods of data collection will help to find out information on each student's improvement is mention in this research. In this research, it is expected to examine whether the passing rate of ICT could be increase as a result of using modern approaches for creative ICT laboratory.

Keywords: ICT, Modern, Approach

OVERSEAS ABSTRACTS

A Study on Child Protection of Tourism Industry in Sri Lanka; A Policy Sentiment Analysis for Key Stakeholders

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Abstract

Child abuse in the travel and tourism industries is one of the key objections raised by child-rights activists against the rapid expansion of the industry and the reliance of economies on the travel and tourism industries. This study attempted to explore the magnitude of industry-related child abuse in Sri Lanka and the legal and business solutions for it. Using a literature review, secondary data, and qualitative primary data analysis, this study finds that child abuse in Sri Lanka exists as a general phenomenon outside the travel and tourism industries at a reasonably high intensity. Day-to-day news items indicate the seriousness of the problem in general. The magnitude of the problem in the industry context is disputed in the literature. Direct and indirect evidence on the matter shows that the magnitude of child abuse in the industry shows that the problem in the industry is high and growing. Given the contribution of industry to the national economy, it is clear that legal solutions alone (efficient implementation of the law, severe punishments) will not solve the problem. Therefore, a three-tier solution is proposed in this study. Legal solutions, business solutions, and educational solutions are the three tiers. Making the legal system more efficient and effective is one solution to the problem. However, it will not be successful without a business solution. The business solution proposed in this study is to develop a code of conduct for the people engaged in the business at different levels. especially a code of conduct for formal sector stakeholders (hotel staff, etc.) and informal sector stakeholders (village level). Increasing awareness among children and parents through educational programs is also identified as an effective strategy in this context.

Keywords: Child abuse, Tourism industry, Legal solutions, Business solutions, educational solutions

Identifying How Gender Roles Affect Tourism Management with special reference to the female managers.

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Abstract

According to the empirical research results, recent research conducted in Portugal has analyzed the perceptions of male and female tourism managers regarding how gender roles influence managerial discourse. The study collected data through focus groups, and the ontological position that participants represent gendered economic subjectivities was questioned. The study aimed to illustrate the ways in which gender roles influence managerial discourse. The data from focus groups is questioned from the ontological standpoint that participants constitute gendered economic subjectivities, and so participant testimonies indicate how gender roles impact tourism management discourse. Thematic analysis of focus group transcripts using WebQda qualitative analysis software reveals a number of context-specific difficulties. The ways in which gender roles influence the norms surrounding tourist management discourse are examined by focusing on tourism managers' representations of what constitutes ideal managerial attributes. The findings demonstrate that managerial traits linked with women and femininity, such as emotionality, are gradually being absorbed into managerial principles, although gender norms linking femininity to care roles continue to have an impact. The social upheaval induced by these complex relationships promotes conceptual advancement in tourism management discourse. By presenting an in-depth examination into how gender roles relate to larger social, economic, and political factors in the context of tourism management in Portugal, this paper contributes to a more comprehensive portrayal of today's economic reality.

Keywords: Emotionality, Gendered roles, Tourism Management Disclosure

Analysis of Coronavirus (COVID 19) and Crisis Management in the Hotel Industry

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Abstract

The goal of this study is to investigate the consequences of the COVID-19 virus, which has become a global health hazard in recent years, on lodging businesses. In this study, a five-star accommodation business in Turkey was evaluated as a case study during the COVID-19 virus time. It carries out its activities by taking its own measures and can be deemed successful with the precautions it takes. Interview forms were chosen as the data collection approach to be implemented by the business managers in the study that followed a qualitative research design. The collected raw data was coded using the qualitative analysis tool MAXQDA. Key findings of the research emerged from the replies provided by the management. Managers underlined that the COVID-19 pandemic resulted in a significant economic loss for themselves as well as all tourism firms, but they took safeguards and continued their operations in order to overcome the process with the least amount of loss. It was said that support programs for tourism enterprises should be maintained both now and after the pandemic. The study's findings were used to try to paint a picture of hotel firms, which are an important component of the tourism sector, in a tough situation.

Keywords: COVID-19, Pandemic, Tourism, Accommodation businesses

A Study on Factors Influencing the Pricing Strategies of Hotel Sector: With Special Reference to Higher Graded Star Category Hotels in Kalutara Destination Site

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Abstract

The purpose of this study is to analyze the factors influencing the pricing strategies of the hotel sector, with special reference to higher-graded star category hotels in Kalutara destination sites. The total population of the study is hotels in Kalutara Destination Site. The sample size of the study was 35 based on three- to five-star hotels in Kalutara Destination Site. The SPSS Statistics software, version 22, was used throughout the data analysis of the survey in this thesis. Descriptive, person correlation, and regression analyses were used to analyze the survey data. This research provides a novel means of analyzing the attributes of hotel room rates. Furthermore, the analytical results provide preliminary evidence of hotel pricing decisions that offer enormous potential for future research. The results of multiple regression can provide a complete version of hotel pricing determinants. The ordinary least squares (OLS) empirical results show that strategic factors, external environmental factors, internal factors, and tactical factors are the main determinants of a hotel room rate. Tourist hotels should segment customers via pricing in order to differentiate between their target markets. High-priced category hotels should adjust their marketing strategies to target individual travelers, especially business travelers, because business travelers typically stay longer and are prepared to pay more for a room than tourists. Hotels should design their personalized services for business travelers, including well-appointed business centers, meeting lounges, concierge services, and international conference facilities, to attract individual business travelers. Furthermore, based on the empirical results on the relationship between the market condition and the room price, the resort hotel should set its price in the high-priced category to attract luxury travelers and increase pay willingness. As with any research, this study also has certain limitations. Due to data availability, the research focuses on the tourist hotel industry in Kalutara Destination Site. Since the empirical results are based on a relatively small sample size, the findings should not be overgeneralized. To enhance the generalizability of the results, further scrutiny through theoretical and empirical studies is required. A cross-country comparison can be made to broaden the usefulness of the results. Moreover, pricing decisions may be influenced by other cultural, historical, or psychological factors that can be incorporated into future studies. Further research should also address the determinants of hotel room rates across different marketing channels.

Key words: Price, Pricing strategy, Hotel sector, Strategic factor, Externalities

Knowledge Creation, Retention, Exchange, Devolution, Interpretation, and Treatment as a Pro-Poor Tourism Economic Growth Driver

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Abstract

When one party has more or better information than the other in a transaction or decision-making process, information asymmetry arises. According to the findings, in the context of poverty alleviation, technology-enabled knowledge flow mechanisms in pro-poor tourism value chains can be used to overcome information asymmetry and aid in poverty alleviation. By enabling knowledge flow, technology can assist in overcoming the lack of access to information that many disadvantaged people face. According to the report, pro-poor tourism value chains can generate opportunities for communities to share their expertise and skills with tourists, earning cash for the community. The employment of technology in these value chains can help tourists and local people communicate information. Mobile technology, for example, can be used to enlighten tourists about local customs and traditions, as well as connect them with local guides and entrepreneurs. Furthermore, the research proposes that through increasing knowledge flow, technology can assist communities achieve a more level playing field in terms of economic opportunity. This can assist to prevent the vicious cycle of economic deprivation and poverty that knowledge asymmetry can cause. In evolving a framework for such a mechanism, the semantic appropriateness of knowledge management (KM) as a concept is scrutinized and a more robust term is suggested. Capacity-building and last mile connectivity are identified as critical issues for knowledge-driven pro-poor tourism interventions. These are examined in light of current paradigms in development thinking, and a framework for dynamic and interactive indigenous knowledge systems is presented. The duties of stakeholders as benign intermediates in the knowledge-driven pro-poor tourist value chain are highlighted, and a case is made for such interventions to be based on economically viable models.

Keywords: Pro-poor tourism, Knowledge, Infostructure

Developing and Android and IOT Based Baby Monitoring System

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Abstract

The issue of parental time constraints and their impact on child well-being is a concern that has been explored by researchers and educators alike. Many parents today face hectic schedules that limit the amount of time they can spend with their children. As a result, children may be left at home alone or with others, which can lead to safety concerns. Parental participation is particularly important for young children, as it can have a significant impact on their development and well-being. Research has shown that children who have positive interactions with their parents are more likely to have better academic outcomes, social skills, and emotional regulation. They also tend to be less likely to engage in risky behaviour. In addition to safety concerns, parents' busy schedules may also limit their ability to communicate effectively with their children. This can make it difficult to address issues that may arise or provide emotional support. However, there are strategies that parents can use to manage their children's technology use and maintain open communication. A virtual babysitter (VBS) Android-based mobile application and IoT device can be used as a solution to this problem. With the Raspberry Pi, the Arduino UNO detects the child's face and turns the camera toward the child. Also, if the parent's mobile application is unable to detect the child, an emergency notification will be sent. This VBS device uses a Raspberry Pi night vision fisheye camera so that the child can watch from anywhere, even at night. It also uses a microphone and speakers to talk to the child.

Keywords: Raspberry Pi, Arduino UNO, Android, Servo Motors, Face detection

Causes of High Turnover among Academic Staff in Private Universities in Sri Lanka (With Special Reference to Engineering Faculties in Higher Education Institutes in Sri Lanka)

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Abstract

At present, higher educational institutions are evolving rapidly as a result of increasing demand for higher education and also due to the low availability of public university openings. Therefore, faculty staff have more opportunities and freedom to transfer their current jobs based on the present demand in the industry. This has led to higher turnover rates among academic staff employed at higher educational institutions. The quality of the service provided and the longevity of the service of the faculty staff are considered vital factors that determine the success of higher educational institutions. In addition, competent and dedicated faculty employees are identified as the most influential resources that determine the output as well as the reputation of higher educational institutions. Therefore, managing turnover rates at a minimum percentage is important for higher educational institutions in order to develop their service quality and business sustainability in the long run. Hence, there are huge numbers of educational institutions available in the industry. In order to achieve a competitive advantage, having a talented and satisfied work force is vital. Thus, responsible authorities involved in higher educational institutions should identify the reasons for increased employee turnover rates and find permanent solutions to overcome them. Accordingly, personal attitudes and also different perceptions such as working environment, salary packages, promotion policies, organization dynamics, and individual perceptions related to the organization might lead faculty staff to move for new job opportunities. Therefore, properly analyzing the reasons for turnover will help higher educational institutions reduce the turnover rate and sustain the quality of the service provided by the institution. Accordingly, this study places emphasis on conducting a comprehensive analysis to identify reasons and proper solutions for the high turnover rates of faculty staff engaged in higher educational institutions.

Keywords: Turnover, Academic Staff, Private Universities

Analysis of Career Adaptability's Mediating Function in the Relationship Between Retirement Planning and Attitude Formation Among Credit Union Employees in West Kalimantan

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Abstract

Mediation is often less formal and less adversarial than going to court and can be less expensive and less time-consuming. It can also be more empowering for the parties, as they have greater control over the outcome of the dispute. This research aims to measure the mediating role of the variable of career adaptability in the relationship between retirement planning and attitudes toward retirement in West Kalimantan Credit Union employees. This research is population research involving 415 respondents aged 40 years. The data was collected using a Google Form which was distributed to the contact number or email of the respondents and processed using the Multivariate Statistical Method, Structural Equation Modeling (SEM), WarpPLS6 Approach. The research concludes that retirement planning has a positive and significant effect on career adaptability, retirement planning has a positive and significant effect on attitudes towards retirement, and career adaptability has a positive and significant effect on attitudes towards retirement because the analysis shows that the four hypotheses proposed can be accepted well. A helpful and important mediating factor in the relationship between the impact of retirement preparation on attitudes toward retirement is career adaptability.

Keywords: Retirement Planning, Career Adaptability, Retirement Attitude

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