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PREFACE

Global Academic Research Institute is proud to present GARI MULTIDISCIPLINARY SYMPOSIUM 2021 which is a series of successful research symposium. The Inaugural Session and the Technical Sessions were conducted at Gall Face Hotel, Colombo, Sri Lanka. The conference was organized into different disciplines which empirical, conceptual and methodological papers were received from academics, practitioners and public policy makers were accepted paying austere attention to the academic standards of the papers. To maintain consistency, authors were prescribed to follow the academic writing format of the GARI Publishers. The reviewing process was apparently transparent where papers underwent a double blinded review process by eminent subject specialists in respective areas. Thus, refereed full papers selected to be presented at the conference were published here. We do not assume any responsibility for any errors or omissions in the research papers which rests solely with the authors.

Special thank goes to Professor R.M.G. Rajapakse – University of Peradeniya, Dr. Mathi Kandiah - BMS, Dr. Kalaivani Vivehananthan - The Open University of Sri Lanka, Dr. S.A.D.H.N. Suraweera - University of Kelaniya, Dr. Malraj B. Kiriella - Economist and Multi-disciplinary Professional, Dr. W.V.P. Himalika Ranaweera - University of Sri Jayawardenepura, Dr. Priyeshni Peiris Perera - University of Visual & Performing Arts, Mahadevan Karunanithy - University of Jaffna, Dr Dahlan Abdul Ghani - Universiti Kuala Lumpur, Malaysia, Mercy K. Khaute - Delhi University, India, Dr. Mayank Singhal - Campbell University, USA.

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Table of Contents

1. Digital Teaching and Learning tools to Engage with Students in Online Learning Activities	14
2. Rote Learning as A Strategy for Students of Low Language Competency, in Online Learning	15
3. Computer based Language learning:the Motivational impact upon ESL Learners	19
4. Impact of formative assessment on online Learning of Students	20
5. The challenges faced by teachers during the risk holidays due to COVID-19 outbreak -A study based on Northern Province, Sri Lanka	24
6. Effectiveness of the Biomechanical factors related to Triple Jump Performance Prediction during Covid 19 Period in Sri Lanka	25
7. A Comparison of Online and Face-to-Face Learning in a Foreign Language Classroom- A Focus on Teaching German Literature and History	30
8. The Effect of Communication on Online Education in Universities in Sri Lanka	34
9. Critical success factors in online learning: examining the role of learner support	35
10. A Study on Transformation Role in Pre-service Teacher Training of Online Teaching Practice	36
11. Safety Training on Safety Performance of Employees: Analysis of Lanka Sugar Company (Pvt) Ltd	37
12. Impact of Covid-19 Pandemic on the Construction Industry in Sri Lanka	41
13. Exploring Entrepreneurship Intention and entrepreneurship engagement of Technology University Students	46
14. Umbilical Cord Mesenchymal Stem Cell Modulate Regulatory T Cells In Allergic Rhinitis Rat Model	47
15. Umbilical Cord Mesenchymal Stem Cell Reduce A-Sma in Diabetic Erectile Dysfunction Rat Model	48
16. Nonword repetition by Sinhala-speaking 4- and 5year old children in Sri Lanka: the contributions of phonological processing and phonological storage to recall accuracy	49
17. Assessment of computer and biostatistics competence in undergraduate medical students	50
18. Association of emotional behavior with nutritional status and regular lifestyle habits among schoolchildren in Gampaha district, Sri Lanka	54
19. An Investigation into the Prevalence of Arbuda (Cancer) in Dehaprakriti (Ayurveda Genomics)	55

20. Role of Rakthamokshana by Jalaukavacharana in the Management of Drushta Vrana	59
21. Application of special Ayurvedic concepts in life style regimens for enhancement of quality of life to prevent diseases	60
22. Does pregnancy influence eye parameters? Assessment of choroidal thickness using EDI-OCT before and after labour depending on the way of delivery method	61
23. Evaluation of serum levels of VE-cad, HMGB1, CD44 and KLK6 as potential biomarkers identifying malignant transformation within vocal fold lesions	62
24. Does cesarean section or preterm delivery influence TGF- β 2 level in human colostrum?	64
25. Pregnancy and the eye. Changes in morphology of the cornea and anterior chamber of the eye in pregnant woman	65
26. “Dalawwa” and “Dewludaya” among Sri Lankan membranophones	66
27. Influences happened to Traditional Dance and Traditional Drums Culture in Sri Lanka due to a Sri Lankan Civilization named "Jadi" because of their very own authentic inheritances of special Artistic Styles	67
28. The art of drumming in Anuradhapura era	68
29. Evolution of Raga Bhairavi in Raga Alapana	69
30. A Study of the Poetry and Actors' Strategies revealed by the opportunity to break the abhorrent familial binding of the Roddy People	72
31. A study of the comprehensive art of dakky playing in Uva	76
32. Innovative methods of Teaching Tabla in Sri Lanka during Global Pandemic & Possible impact on the Learning Process	79
33. Evaluation of Ceylon Philately during the British Colonial Era	83
34. Creating a quality Tabla	87
35. Reed mats design and the aesthetics of their decorations – a study based on Kathankudi women engaged in weaving reed mats	91
36. An analytical study of contemporary fashion color trends	93
37. A study of design principles and elements of beads which find from Rajagala historical archeological field	94
38. Valluvar’s Statement about Virtue	95
39. Contribution of Sri Lankan Researchers on development of Tabla	99
40. Can characterization be identified as time travel?	102
41. Studying the identity of the material use of folk art and contemporary drama	105

42. The Passion Plays in Sri Lanka during the Portuguese Era	110
43. Representational Politics and Contemporary Artworks in Sri Lanka	114
44. Degree Qualification Expectations for Maritime Education in Sri Lanka: Shipping Companies	116
45. Contemporary Consequences of the Prevention of Terrorism Act in Sri Lanka and Its Impact on Human Rights	119
46. A Multi method study in Qualitative study in Management: A systematic Review	122
47. Assessing project management practices and capacities in strategic implementation of public universities in Sri Lanka: A Qualitative Study	123
48. Barriers to Innovation: An Exploratory Study of Public sector Organisations in Sri Lanka	124
49. The Right to Property in the Indian Constitution: Contemporary Challenges	129
50. Towards Equitable sharing of Fishing Harvest in Plak-Bay Region; State Responsibility on assuring Viable Solutions to Fishing Issues	132
51. Multidisciplinary Cooperation issues during Organisational Crises	135
52. Experiential Analysis of Elite Athletes' Sports Performances through Multidisciplinary Variables	142
53. A Study on Human Security Violations in the event of Climate-Driven Water Scarcity and its Role in Incentivising Conflicts among Farmers in the North Central Province of Sri Lanka	147
54. A Study on the Whereabouts and Interests of Ancient Tourists Who Visited Sigiriya during the 6 th - 11 th Centuries AD	151
55. Wellness Tourism: A high prospective Niche Market after COVID-19 in Sri Lanka	157
56. Engage the Past to Advance the Future	162
57. Research on the Problems and Countermeasures of Intangible Cultural Heritage Education in Chinese Colleges and Universities	163
58. Constitutional protection of cultural heritage in the South Asian countries; legal perspective	164
59. Perceived effectiveness of therapeutic community model as a rehabilitation approach for the individuals with substance use disorder, Sri Lanka	165
60. Patient Perception related to Normal Hospital Diet Consumption in a selected Teaching Hospital, Sri Lanka	166
61. Health Promoting Lifestyle Behavior among Students at School of Nursing in Sri Lanka	171

62. Knowledge and attitude regarding safe handling of chemotherapeutic drugs among nurses in Sri-Lanka: a cross sectional survey	172
63. A Secondary Data Analysis of Morphodynamics in the coastal area around Port of Oluvil	173
64. The pattern of fish consumption and consumption behavior among Sri Lankans in the Central Province of Sri Lanka	178
65. Analysis of the phytochemical content and determination of the antioxidant capacity of the leaves, stems and flowers of <i>Sesbania grandiflora</i> (Hummingbird tree) in Sri Lanka using different solvents for extraction	183
66. Determination of Antibacterial Properties of <i>Clitoria Ternatea</i> Flowers of Southern Province and Western Province, Sri Lanka Against <i>Staphylococcus Aureus</i> and <i>Escherichia Coli</i>	184
67. Identification of <i>E.coli</i> in drinking water samples in Jaffna (valikamam, west) area and detection of antibiotic resistance	189
68. Protein Enrichment of Yoghurt Using Seaweed Extracts	190
69. Identification of <i>Lactobacillus</i> from set yoghurt samples and determination of their acid tolerance activity	191
70. Influence of COVID_19 global crisis on mental and behavioural changes between age 14-19 and its probable long-term impact on the future at a level of clinical significance	192
71. Influence of COVID-19 global crisis on mental and behavioural changes in individuals between ages 20-35 and its probable long-term impact on the future at a level of clinical significance	193
72. Identification of <i>Lactobacillus</i> from set yoghurt samples and determination of their antioxidant activity	194
73. Influence of COVID-19 global crisis on mental and behavioural changes in individuals between ages 65-70 and it's probable long-term impact on the future at a level of clinical significance	195
74. Determination of Antibacterial Activity of <i>Lactobacillus</i> in Yogurt Drink Samples	196
75. Prevalence and Associated Factors for Lower Back Pain among Professional Bus Drivers	197
76. Work Related Psychological Factors among Professional Bus Drivers and their effect on Lower Back Pain	202
FUTURE CONFERENCE	207

DIGITAL TEACHING AND LEARNING TOOLS TO ENGAGE WITH STUDENTS IN ONLINE LEARNING ACTIVITIES

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Due to the COVID – 19 pandemic, the Sri Lankan education system has rapidly transform their conventional education to online education which is unplanned. All universities, campuses, and higher education Institutes tried their best to promote online education to ensure uninterrupted university education during this prevailing situation. However, due to lack of preparation as well as lack of training on digital teaching and learning in the Sri Lankan higher education sector, online learning is still at the primary level of adopting technologies in learning and teaching. Interaction is an essential element in the learning process. In educational settings, interaction can be threefold: learner-instructor, learner-content, and learner-learner interaction. Online learning also has the potential to enhance interaction since it uses multidimensional forms of communication and interaction, i.e., simultaneous intimacy and distance, multimedia presentations, and hyper-searching. Interaction in online learning can be either synchronous where teacher and learner engage in a certain topic simultaneously or asynchronous where participants control their own timetables and fit learning around their other commitments. The advantages of synchronous interaction are stimulating motivation, interactive participation, immediate feedback, user-friendly technological tools for effective learning, and costs and time savings. Synchronous interaction technologies include real-time two-way text-based online chat, Internet Relay Chat (IRC), instant messaging, real-time audio, application sharing, voice and video conferencing, shared electronic whiteboards, live assessment testing, and voting and audience-controlled tools. The advantages of asynchronous interaction are flexibility, time to reflect, anonymity or pseudonymity, no time-zone constraints, situated learning, and cost-effectiveness. Asynchronous interaction technologies include email, CD-ROMs, collaborative learning forums, listservs, bulletin boards, newsgroups, web pages, computer conferencing, video and audio streaming, and blogs. All these forms of interaction give online learning useful advantages. However, with the limited experience of online teaching, engaging with students in online learning activities seems a challenging task for university lecturers in Sri Lanka. It is crucial to build the capacity of university lecturers to introduce digital teaching and learning tools to engage with students online learning activities. Therefore, to help academics and professionals to understand more on digital teaching and learning tools to engage with students, this paper aims to identify and adopt different digital teaching and learning tools to engage with student online, and how to assess students at different points of the learning process and provide feedback. This understanding will help academics to effectively carry out online education thereby to measure student's engagement and progress in the learning process. This paper further discuss benefits and challenges of using different digital teaching and learning tools such as GoSoapbox, Mentimeter, Answer Garden, and Kahoot to help academics to rethink how to plan their online teaching and learning activities to engage with students effectively and identify relevant tools for the same purpose which might be helpful for academics to adopt in their online courses.

Keywords: Digital Teaching and Learning Tools, Students, Online Learning Activities, Sri Lanka, Universities

ROTE LEARNING AS A STRATEGY FOR STUDENTS OF LOW LANGUAGE COMPETENCY, IN ONLINE LEARNING

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ABSTRACT

Communicative Language Teaching (CLT) which stresses heavily on negotiation of meaning, is being sought after and prescribed as the best practice to teach a language. But in situations where adults of low language competency are far below the expected standards to start learning through CLT and face time constraints due to limited allocated hours for ESL classes, the learning process can be jeopardizing. This situation can be exacerbated with remote learning, due to lack of concentration and lack of opportunity for real communication in online classes. Hence an alternative method RL is tested in this study with the intension of making learning easier, faster and enjoyable.

Key words: AR – Action Research, RL – Rote learning, ESL – English as Second language

INTRODUCTION

Covid-19 disrupted the Education system and the social experiences of the students cohort in Jaffna to a great extent. The sudden shift in the educational paradigm from physical classrooms to online learning has impacted students both positively and negatively. Virtual language learning specifically, has posed an immense challenge for the students as well as the teachers. Particularly for students of low language competency, the shift to online learning has been debilitating. The communicative method which is the prescribed method in most of

the ESL curriculum, does not create a favorable situation for the students of low language competency, as it demands a certain level of existing knowledge of the language and adequate time to learn. This situation is exacerbated with remote learning, due to lack of concentration and lack of opportunity for real communication in online classes. Hence, Rote learning (RL) as an alternative method to teach ESL to the students of low language competency is tested in this study with an expectation of making learning easier, faster and enjoyable. Though RL had been always repudiated for learning without understanding, this study explores how it can lay a foundation for understanding upon which additional knowledge can be built. Studies on the effectiveness of RL had been conducted in the past by many educationalists viz. Wu (2014), Rashidi and Omid (2011) and Ding (2007) and many others in learning vocabulary, facts and texts, mostly with primary and secondary students. The novelty of this study lies in the fact that Rote learning (RL) in this intervention is tested to learn grammar rules with adult learners. RL's function as an effective strategy to promote automaticity among learners to construct grammatically coherent sentences quickly and effortlessly that leads to learner-achievement and learner motivation is analysed in detail.

According to Li & Cutting (2011), even though the western and eastern cultures see RL as a mechanical representation, RL

promoted by Confucianism is memorizing with understanding which is an active learning process. In this view, RL is not merely repetition but it involves “memorization, understanding, practicing and reviewing.... that leads to deep understanding.” (Li & Cutting, 2011, p. 22).

METHODOLOGY

With the experience of teaching the students of low language competency, the researcher was made to realize that teaching through a communicative method did not have much effect, in improving their competency or in increasing their enthusiasm to learn. Some students transliterated the passages for the speaking activities and performed them without understanding it. When asked to make an effort to communicate with the existing knowledge, they felt overwhelmed which demotivated them to learn. One of the principles of Action Research (AR) is to draw on the experience of the practitioner for an action hypothesis, in order to find a solution for the problems faced (Hendricks, 2019). Thus, an AR was chosen as the method in this study to test the hypothesis of the practitioner, which is to rote memorize sample sentences of a particular grammar rule, which will aid internalization of the structures of the sentences that can be applied in new contexts. The research question of this study is ‘‘how effective is RL as a strategy to teach/learn English, with students of low competency at the University of Jaffna’’? When teachers see a gap between an ideal situation in a teaching context and the actual situation, an Action Research (AR) helps to bring about changes and improvements based on the ‘‘solid information’’ received at the grassroots level (Burns, 2010, p. 2). In-depth information at the grassroot level was collected by using various data collection tools like surveys, focus group discussion

(FGD), observation chart, behavioral checklist, open group discussions, teacher reflective notes, students’ reflective journals, questionnaire, test, co-lecturer review and documents. The data collected in the study with 37 students from the Department of Tamil, in the second year of the Bachelor of Arts degree program, at the University of Jaffna, were predominantly qualitatively analysed using themes according to the codes identified at different levels. One grammar function, the conditional clause in its basic form, which comprises the 3 types, namely, clause I, clause II & clause III were taught in this intervention. It was expected that by memorizing sample sentences of a particular grammar rule, students would easily internalize the structures of those sentences, and the collocations and sequences of those structures will get registered in memory. The use/meaning of the three conditional clauses were explained to the students as they memorized the sample sentences. Memorizing sample sentences will eliminate the need to focus on the forms of the grammar rule. For students who find it difficult with the day-to-day vocabulary in English, remembering the technical terms used in the forms, and the grammar rules that are expected as a prerequisite to learn the new rule, will add to their existing difficulty in learning. This strategy is expected to motivate students, by making learning easy and by giving them a sense of achievement each time they experience success by completing tasks without difficulty. Rote memorizing samples of conditional sentences, was the first step in this intervention. The three tasks that followed the memorization were at three different levels, increasing the challenge held for the students in applying the knowledge gained through RL. Tasks were designed to gradually increase the need for other existing knowledge of the language, for successful completion. The first two tasks incorporated three different

activities on each type of the conditional clause. Success of this strategy was measured through analyzing the level of student engagement, motivation and achievement gained. Teacher observation notes, observation chart, behavioral check lists, reflective students journal and open discussion after each task were the main tools that collected information on student engagement and student motivation. The 3rd task which was also considered a test, captured students' achievement precisely in addition to the information collected during the first two tasks. Apart from the performance of the students, the collector review of the students' answer sheets, was a great source of evaluation to capture students' achievement.

RESULTS

Findings indicated that the respondents were highly successful in direct application of the structures internalized by RL in different contexts. They were motivated to learn further and were quite positive of the strategy they used to perform the tasks. As the difficulty level of the tasks scaled up by demanding knowledge of the other grammar rules to complete, students used resources for help like clarifying from the teacher and referring to the internet. Though Task 3, which was to translate an incident to English using conditional clauses in appropriate places was not a success as expected, it was observed that students have taken effort to write the conditional sentences in the passage correctly. Hence, this task that evaluated the application of conditional clauses in a wider context revealed that students were not successful in comprehensive tasks that demanded other grammatical competence of the language.

DISCUSSION

The self-efficacy theory proposed by Bandura (1997, as cited in Dornyei, 2001) believes that the belief in own self to produce desired effects will make one engage with perseverance. The sentence structures that were internalized by RL were recalled from the memory easily during task 1 & task 2, and the students were encouraged by their efficacy to produce desired effects in learning grammar and were greatly motivated to learn further. Anyhow, task 3 was not a complete success as expected by the researcher. Difficulty faced by the students in completing Task 3 can be attributed to the following reasons: 1) Students did not possess the fundamental knowledge in English as their proficiency in the language was low. 2) They had difficulty in combining existing knowledge with the newly learnt conditional clauses. Aspects like limited sample size, selection of particular grammar rule, duration of the intervention and teacher being the observer would have had an impact in the results of this study. A study that addresses these issues to lessen their impacts will help generate a more comprehensible result.

CONCLUSION

To elucidate succinctly, this study has revealed that, RL has been a successful strategy with the learners of low competency, at a level that did not demand knowledge of other grammar rules in which the students were not competent in. It has positively impacted the learners' perceptions on learning ESL. The initial tasks motivated the students to get emotionally, behaviourally and cognitively engaged. But as the tasks stepped up to be more difficult by involving other grammatical and lexical knowledge, a struggle to cope with the situation by the students was observed.

The initial motivation and boost gained by the students while engaging in Task 1 & Task 2, kept them going with a positive attitude until the last task which was very challenging. Hence, we could conclude that this strategy was successful in engaging and motivating the students, but achievement by the students had been gained only in tasks that did not demand additional knowledge of the other grammar rules. Therefore, this strategy could be used to teach each grammar rule separately and could be tested in a situation where all of the gained grammatical and lexical knowledge come together to accomplish the task. Thus, RL can be employed as an effective method for ESL online classes that has less opportunity for real life communication. It will promote motivation, engagement and achievement which would go around as a dynamic cycle to achieve successful learning.

Note

¹If + Simple Present, will-Future

²If + Simple Past, Conditional I (= would + Infinitive)

³If + Past Perfect, Conditional II (= would + have + Past Participle)

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COMPUTER BASED LANGUAGE LEARNING: THE MOTIVATIONAL IMPACT UPON ESL LEARNERS

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ABSTRACT

This paper highlights the motivational role of computer-based language learning in learning English as a Second Language. It is clear that motivation is an important aspect in student learning. The aim of this paper is to provide an understanding of student motivation for learning English as a second language through the use of computer-based learning at the American College of Higher Education. The paper analyses levels of motivation after computer-based language teaching of English as a second language. Within this paper quantitative methods are adopted. The use of statistical analysis techniques identifies a rise in motivation in ESL through computer aided language assessments and instruction. This paper suggests further research based on teacher interviews, a larger sample etc.

Key words: motivation, computer, assessment, language, instruction, learning

IMPACT OF FORMATIVE ASSESSMENT ON ONLINE LEARNING OF STUDENTS

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ABSTRACT

Evaluation methods such as Formative Assessments (FAs) under the assessments are key components of the education system to evaluate the continuous transference of significant experience from one generation to another. Due to the Covid-19 pandemic, online education has become more prevalent, including the changes in evaluation methods. The research was conducted to examine the impact of FA on the online learning of students, which was conducted with the aid of 35 students who followed a particular course unit conducted by the University of Sri Jayewardenepura. The data obtained via online questionnaires and seven focus group discussions were analyzed using content analysis. A detailed written report based on a dataset and an online VIVA presentation based on the submitted report were given to students as first and second FA methods, respectively. The FA methods supported the increment of student academic performance by encouraging them to apply theoretical knowledge practically. It helped them understand what they already know and what they should learn more towards success in summative assessments. The second assessment supports students in developing their understanding of concepts and skills, providing opportunities to self-correct, increasing their interest and willingness to learn. The main challenges of using online-based assessments were the lack of a sound environment and unforeseen technological barriers. The significance of

having a backup plan in case of emergencies by both student and lecturer is also highlighted. It was concluded that by using the proper FA methods, students could improve their online learning outcomes.

Keywords: Formative Assessment, Online Learning, VIVA Presentation

INTRODUCTION

Assessments are one of the main evaluation methods of the education system. Formative assessment (FA) plays a significant role in the evaluation process, which is increasingly used by stakeholders of the education system, such as teachers, lecturers, researchers, and educational policymakers with the purpose of supporting student learning. The primary way to receive an education is to take a course of training in educational institutions (Ozan & Kincal, 2018). It can simply explain online learning as a process or set of activities to learning over the internet. Due to the Covid-19 pandemic, online learning has become a more effective method with the aid of the rapid development of technology in the contemporary world. Davis (2015) has stated that formative assessments are helpful to understand the ability of the teacher/lecturer to adapt to lessons and assess students' understanding about lessons.

Feedback is also vital in the process of conducting FA as it is information on students' understanding or performance

provided by a teacher/lecturer/peer/parent (Hattie & Timperley, 2007). Therefore, the meta-analysis related to the impacts of feedback on learning and achievements of students inside the classroom of Hattie and Timperley (2007), Hattie (2009), and Hattie and Zierer (2019) is referred to as visible learning researches. This indicates that though assessment feedback drives students to understand what to do more or better, know about how and what they understand and misunderstand, and find strategies to improve their learning, effective feedback on assessments is entirely lacking.

According to Kondri (2015), the assessment process is not only important for teachers and students but also for parents of the students to know about the way the teachers assess their children by giving written feedback, grades or other different ways of assessing. Meanwhile, each of the assessment forms used by the lecturers/teachers gives a view of the students progress at the educational institute. The research conducted by Hanover research (2014) indicates that the existing research yields promising conclusions regarding the impact of FA on student academic achievements in a face-to-face teaching and learning environment (Hanover Research, 2014). Even though most research has been conducted on FA in the classroom, the impact of FA on online learning is the subject of significant research content. Therefore, the objective of this research was to examine the impact of FA and identify the benefits and drawbacks of FA on the online learning of students. Furthermore, it was aimed to provide suggestions to improve the FA on online learning of students.

METHODOLOGY

The study was carried out as an online survey to achieve the objectives of the study using randomly chosen 35 students

in the academic year 2018-2019 who followed a particular course unit conducted by the University of Sri Jayewardenepura under the Department of Social Statistics. The first FA method was a detailed written report based on a particular dataset. The second FA was an online VIVA presentation based on each report submitted by students. The duration of an academic semester was 15 weeks for a course unit. In the 7th week of the academic semester, the first FA was given the instructions for online submission via Learning Management System (LMS), where students received one week. The second FA was held one week after the deadline of the first FA. The total time allocated for an online VIVA presentation per student was 20 minutes, including 10 minutes to present and 10 minutes for questions and answers.

Mini Focus Group Discussion (FGD) with seven groups was used as a qualitative approach to analyze data. Five students were grouped homogeneously in age, registered degree program, and medium of instruction they have chosen, but heterogeneously in gender to discuss two types of formative assessments that they faced during their learning of the course unit. Each FGD was guided with a schedule in a way that it becomes a natural discussion with active participation, and the discussion time was limited to half an hour to keep the focus and interest well. The data from FGD was collected via audio recording and observations. Moreover, the text transcript of the audio recording was obtained for easiness. As FGD provides a range of opinions on the study, it provided many insights to design the questionnaire. Therefore, the online questionnaire was prepared after having FGDs. The data was collected using online questionnaires prepared in English and as well as in Sinhala. It was distributed proportionately according to the number of students in each medium of instruction.

Descriptive analysis was performed to get an idea about the respondents. Finally, a qualitative analysis technique called content analysis was used to analyze FGD data and data collected via the online questionnaire. Content analysis provides a systematic coding of data by categorizing the information presented in various forms of text to identify patterns which is difficult to discover by only reading the transcript. After analyzing the data, the results were discussed through a coherent report.

RESULT

The descriptive analysis results showed that 63% of students in the sample chose English as their medium of learning, while 37% chose Sinhala. The gender composition of the sample is 78% female students and 22% male students.

DISCUSSION

Results showed that the first and second FAs were a new experience for the students. It was essential to apply theoretical knowledge in practical applications to improve practical ability and take its benefits for the success of the summative assessment. Students receive a better understanding of what they already know and what to learn more as a helping hand for the summative assessments. The second assessment increases students' willingness and interest to learn with a new involvement. It regulates students' understandability of knowledge and own learning as the opportunity to make necessary self-corrections of the first assessment. The first FA improves their academic writing style, while the second FA method improves their performing ability, communication skills, and planning and organizing ability of a VIVA presentation. Since the students had submitted the written report before

conducting the VIVA presentation, the lecturer was able to recognize the understandability of students' theoretical knowledge in the relevant area through the first FA and how they had made necessary arrangements in their second FA. This finding is similar to the finding of Davis (2005) related to face-to-face learning that FAs are helpful to understand the ability of the teacher/lecturer to adapt to lessons and assess students' understanding.

At the end of the VIVA session, the feedback given by the lecturer for both first and second FAs was significant for students to correct information, peers to apply alternative strategies, and students to look up the answers to self-evaluate their performance. Hattie (2007) also found that the effective feedback given for FAs guides students to improve their performance in face-to-face learning. Analyzed results showed that it would be grateful if they could do a live practical session by themselves rather than a VIVA presentation. It was identified that a lack of a sound environment for online presentation and unexpected technological barriers such as laptop breakdowns, power failures, and strength of the internet dropped down, etc. as the main challenges of online-based assessment. Therefore, it was identified the significance of keeping a backup plan by both students and lecturers to face unpredictable situations. Although several course units are applied with FAs in various strategical ways, this research was limited only to a particular course unit conducted by the Department of Social Statistics.

CONCLUSIONS

It can be concluded that FAs improve the learning outcome of students with the improved learning process. Moreover, the involvement of FAs increases the overall performance of students. Therefore, it was suggested to apply the second FA method for more course units since it will be a good opportunity to face an interview with high confidence in the future held mostly via an online platform.

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**THE CHALLENGES FACED BY TEACHERS DURING THE RISK HOLIDAYS
DUE TO COVID-19 OUTBREAK -A STUDY BASED ON NORTHERN PROVINCE,
SRI LANKA**

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ABSTRACT

The COVID-19 pandemic has created a global catastrophe and impact in all the sectors including education. Since Sri Lankan schools have been closed more than 4 months, teachers need to find digital platforms and distance learning methods to retrieve the loss of learning. With the mass curfews and long risk holidays teachers underwent challenges personally as well as professionally. The present study is an attempt to investigate the challenges faced by teachers throughout the risk holidays. Descriptive survey design was used in this study. A total of 500 teachers who teach secondary classes were randomly selected across the 12 educational zones in Northern Province. A combined questionnaire which inquires the personal and occupational challenges of teachers was created in Google form and pass to the teachers via social media such as facebook, viber and whatsapp and the data was collected and analyzed in order to establish the relationship of challenges with various demographic characteristic and find the differences between categorical variables by using Chi squared test. The economical shortage, lifestyle change, health complaints, lack of physical activities, weight gaining, conflicts among family members, increased household work are the identified personal challenges. Married and female teachers experienced more economical shortage than others. Both male and female teachers faced increased household burden. Married teachers had moderate level of family conflicts in the home. Most of the teachers have felt the life style pattern has changed in the risk holiday. Teachers from the age group of 40-60 suffered with health inconvenient and less physical activity. More than half number of teachers (61%) put on weight without any gender and civil status differences. Most of the teachers' mental well-being was the mixture of stress (24%) and lazy (21%) meanwhile half amount of them felt so healthy and relax. The professional challenges can be categorized as teacher oriented, students oriented, family as well as technology oriented. Lack of tech and soft skills, less preparation and interest, high internet charges, lecture-based teaching without activity are some of the challenges related with the teachers. Low attendance to online and distance classes, less contact and interest, poor computer literacy are student's-oriented challenges. Financial hardships, Irresponsibility, less communication with teachers and the work load of the parents are the few causes for the challenges that teachers experienced. Moreover, the inadequate coverage and the troubles in video and sound system in online classes are the technology-oriented problems that teachers could be face. Teachers need socio-emotional and economical support to face the pressures in a time of crisis as well as support their students' emotional needs. The study can find measures of temporary policy responses in curriculum as well as to suggest viable recommendations to alleviate the challenges that teachers face as well as to improve the mental health of teachers in an optimum mode which is very essential in upcoming days to give an efficient productivity.

Key words: Challenges of teachers, COVID-19 risk holiday, E-teaching, Mental well-being

EFFECTIVENESS OF THE BIOMECHANICAL FACTORS RELATED TO TRIPLE JUMP PERFORMANCE PREDICTION DURING COVID 19 PERIOD IN SRI LANKA

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ABSTRACT

The triple jump is an athletic event consisting of three phases which are hop, step, and jump. According to the reversibility training method, that reveals when these athletes can't be able to maintain their physical fitness and performance properly, it influences for their performance negatively. This study was to identify how the athletes maintain the performances and how they obtain the performance prediction using the biomechanical method during the COVID-19 period in Sri Lanka. Those data were collected from five National standard male triple jumpers. The mean age of the participants is 26. The triple jump technique was done by using the dynamic equation which included kinematic variables for flight phase of the above three phases. The Matlab17 software was used to optimize the flight phase. Three cameras (100Hz) were used to observe the coordinates of center of mass and kinematics variables on the sagittal plane. The videos were analyzed through the Kinovea (0.9.3 version) software. The hop dominated balance technique (35.5: 30.4: 34.1) was used for the prediction. The previous performances values of the players were 14.32m to 16.07m (Before 2020). Current COVID-19 period performances were 13.13m to 15.43m. The velocity and angle were optimized by 5% and +20 outcome of the

players were more than 16m. Considering this study, athletes' phases weren't in the optimum phase ratio. The hop dominated balance performance prediction and players' current and previous performances were significantly different in this study. Through this research all coaches and athletes can identify their shortcoming phase and values of the optimization variables and prediction performance level. If not, coaching techniques and tactics can be modified.

Keywords: Kinematics, Phase ratio, Prediction of performance, Triple Jump

INTRODUCTION

The triple jump is one of the tracks and field events, which requires the jumper to repeat the generation of maximal force to maintain the horizontal velocity during all phases of the jump. The triple jump consists of a running approach, 3 take-off phases in which the athlete hops on one foot, lands on the same foot, steps onto the opposite foot, and finally jumps and lands in the sand pit (Miladinov O, 2004). In this COVID 19 situation, the training routines of a significant number of athletes around the world have been abruptly interrupted. Thus, sports science professionals and scientists are challenged to help athletes deal with some of these relevant aspects during this period. In the triple jump event,

we train to improve lower limb muscle strength and other physical fitnesses. And the technique isn't followed correctly in due to this pandemic because lack of knowledge and lack of technical tools and poor knowledge about keeping the performance from dropping. This study was conducted to observe and investigate at the improvement and decline of triple jump athletes in the Covid-19 epidemic situation. By creating a model for every coach and athlete can understand the factors needed for their own fitness, achieve their highest potential and perform at their highest level. This study examines the coaches' biomechanical knowledge and the success of using it for training in such a situation.

METHODOLOGY

This study has selected the 5 best national senior male triple jumpers according to the 2019 National Championship in Sri Lanka and obtained data before the COVID period.

Two best performers were taken for the biomechanical optimization model. Player

A (mass: 70 kg; height: 1.78 m; best performance: 15.76 m). Player C (mass: 71.35 kg; height: 1.80 m; best performance: 16.33 m). Before the collection, the video data was done by pilot test in Sabaragamuwa university premises. After the forecast system, 3 more players are added, and their best performance is predicted and the performance drops during this period. Optimization has done the takeoff velocity of the model was each increased by 3 %, 4 % and 5 %. In contrast, the takeoff angle (-1 0,0 0, +1 0, +2 0) from the measured values and all combinations of these two parameters were investigated, leading to 16 optimizations in total. The takeoff angle of the model was manipulated by increasing the three phases separately their phase distance. Approach velocities ranged from 8.1 ms⁻¹ to 10.5 ms⁻¹ (the maximum approach velocity recorded at the 2009 IAAF World Championships in Berlin [German Athletics Federation, 2009]). Optimization was used to maximize the distance of the whole triple jump in each condition.

$$d_{flight} = v^2 \sin 2\theta / 2g \{1 + (1 + 2gh / v^2 \sin^2\theta)^{1/2}\} \text{ (Hay J. G., 1992).} \longrightarrow (01)$$

The above equation was used for distance during the flight phase. The optimize values were obtained as follows using Matlab software for this equation (01). In the above equation, h was taken as a constant value and given as a mean value (h = 0.1m) and the flight phase in the jump phase as h = 0.75m. Data related to the jump phase were taken from it. The data obtained in this way made it possible to obtain a large amount of data for velocity and angle (Thotawaththa & Chandana, 2021).

RESULTS

The Balance technique was used here. That is, its values are 35.5 %, 30.4 % and 34.1 %. Player A 14.15 m performance was divided according to the above ratio and values were obtained for hop, step, jump. It is shown in the table below. This was done by using the Matlab graphs as mentioned above to increase the velocity to 3 %, 4 %, 5 % and keep it at an angle (-1 0,0 0, +1 0, +2 0). Then the total distance was obtained as follows (table 1).

Table 1 Optimized Simulation overall distance player A and C

Optimized Simulation (Hop-Dominated Balance Technique) – Player A					
Hop TO Angle (°)					
		14	15	16	17
Hop TO Velocity Simulation	100%	13.5493	14.14085	14.70423	15.29577
	103%	14.11268	14.76056	15.35211	15.97183
	104%	14.30986	14.92958	15.57746	16.19718
	105%	14.50704	15.15493	15.80282	16.4507
Optimized Simulation (Hop-Dominated Balance Technique) – Player C					
Hop TO Angle (°)					
		14	15	16	17
Hop TO Velocity Simulation	100%	14.76056	15.40845	16.02817	16.64789
	103%	15.40845	16.08451	16.73239	17.40845
	104%	15.6338	16.30986	16.98592	17.66197
	105%	15.85915	16.56338	17.23944	17.94366

Following results have shown the before COVID 19 Pandemic and during the pandemic results. And also, shown the above optimization values and performance drop presentation (table 2).

Table 2 Performance Variations

Player	Previous Performance(m)	Current Performance(m)	Prediction Performance(m)	Performance Drop %
A	16.07	14.15	16.45	11.9
B	15.25	13.58	16.39	10.9
C	16.33	15.43	16.98	5.5
D	14.32	13.17	16.30	8.03
E	14.46	13.94	15.97	3.5

DISCUSSION

To validate the designed biomechanical model all analyzed data were applied to the model of selected sample. Then the results of horizontal, vertical velocity and take off angle were calculated. Through it, optimization distance was calculated. That value of selected and phase ratio player A 37.3 %, 26.2 %, 36.5 %. and player C 36.3

%, 27.3 %, 36.4 %. According to Jonathan Edward, the Phase ratio 35.5 %, 30.4 %, 34.1 %. for balance technique. The model shows the results increase velocity 3 %, 4 %, 5 % and simulation above hop dominated current performance and balance technique used hop dominated optimization increase the overall performance.

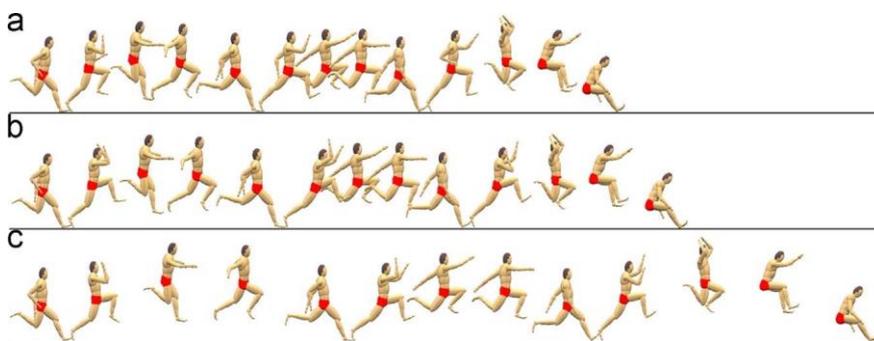


Figure 1: (a) Techniques employed in Player A; Current simulation 14.15m, (b) Techniques employed in; Player C Current simulation 15.43m, (c) Techniques employed in; 17m mark optimization simulation increased takeoff angles and takeoff velocities (Thotawaththa & Chandana, 2021)

But Balance technique is the best results showed. Player A current performance 14.15 m after optimized 16.45 m. Player C Current performance 15.43 m after optimized 16.98 m. Current performance is very poor special step phase more force comes, after the hop phase that force, and velocity cannot balance next phase that's why step phase very poor. And CM rotation was not forward. Current player places the CM backward while supportive phase landing part. However, this model can be further developed to a 3D optimization model and performance

variables optimization and kinematics and kinetic variable both add to this model can get a better result in applied biomechanics and sport practice which helps to optimize performance of triple jumpers. The values for the phases were obtained as follow from the above (figure 1) optimization. This shows that distance can be improved by balance technique optimization. Initial current optimization and hop dominated balance optimization method were taken to the consideration. Generally, two athletes' step phase was considerably less than other two phases.

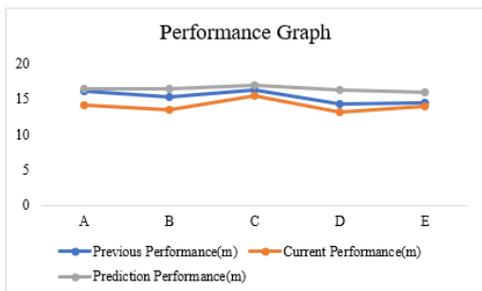


Figure 2: Performance Variations

This study has found average of the drop percentage as 8%. The previous performances are better than the current performances. These data were collected in after the isolation of Sri Lanka. Above graph (figure 2) has showed the prediction level and the current level. A conditioning

routine can help athletes to boost and maintain immunity, minimize the effects of detraining, and facilitate the return to a normal routine, as well as improving tactical knowledge. Strength and conditioning professionals, teams, and athletes who able to adopt these measures

will experience less difficulty when returning to their normal training and competition routines (Leonardo, Danilo, & Alexandro , 2020).

CONCLUSIONS

Successful completion of this study, the model's all equations can be input to the software and after entering relevant data of any athlete, optimize velocity, takeoff angles and distance can be gain for each athletes / jumpers each phase. Through this research all coaches and athletes can identify their shortcoming phase and values of the optimization variables and prediction performance level. Apart from that, this biomechanical model can be used to improve the talent and to minimize the errors of postures when performing triple jump event. And also, this can be used to identify the relationship between the performance variables and the performance of the players. Further, the methodology that uses to create this model can be also used to create this type of models to other sports and other jumping events such as other vertical and horizontal jumping events. The performances of the players in Sri Lanka can be able to increase using the biomechanical training methods. Identifying the main variables, we can develop special training for that. In this case, following this prediction and find the performance level of the player can get ready for the upcoming competitions. And Sri Lankan Triple jump Players can achieve more than 17m mark and obtain

Olympic medals. Coaches and Players should consider this biomechanical factors and models to develop the performances of the players.

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A COMPARISON OF ONLINE AND FACE-TO-FACE LEARNING IN A FOREIGN LANGUAGE CLASSROOM- A FOCUS ON TEACHING GERMAN LITERATURE AND HISTORY

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ABSTRACT

The trend of online teaching and learning has a great impact on every sector of education across the globe. The foreign language education is similarly affected by the increasing tendency of online education due to the ongoing corona pandemic. The present study compares the performance of university students during face-to-face learning and online learning with focus on teaching German as a foreign language. It specially aims on teaching literature and history in German language to small groups of university students. It introduces effective strategies to be used during teaching foreign language literature and history virtually. The data were collected from 30 undergraduates of University of Kelaniya, who follow the four-year honors degree program in German for the Bachelor of Arts degree. Quantitative data were collected through the assignment marks of each student after both sessions, whereas the qualitative data were collected through class room observations. The results show an increase of the performance of students after the online lessons. And proves the effectiveness of online learning and teaching strategies used by the lecturer to teach the foreign language literature and history online. It concludes that, although there are few minor drawbacks of online learning, it is the most suitable mode of instruction to teach subjects like literature and history in a foreign language to small groups of university students.

Key words: Online Learning; Face-to-Face Learning; Foreign Language Teaching; German as a Foreign Language

INTRODUCTION

The foreign language education in Sri Lanka is strongly affected by the increasing trend of online education since the outbreak of covid 19 Pandemic in the beginning of 2020. The study areas of literature and history are considered main components of teaching German as a foreign language for the students of University of Kelaniya.

Lan Lancashire (2009) in his research "Teaching Literature and Language Online", whose results are consistent with the present study explains the benefits and challenges of teaching language and literature online with different digital tools and gives explanations about online course design and assessment, which can be adopted to online, face-to-face and blended learning courses. According to its results, the online courses made students motivated and the access to education increased. He identifies a drawback of online teaching as the work load is heavy than face-to-face learning. The research "Current Trends in Online Language Learning" by Robert Blake (2011) focuses on application of online learning to language education through computer assisted learning and proves that, the proper integration of these new formats can develop the second language skills.

John F. Lyons in his research “Teaching History online” introduces suitable lesson plans, online tools to create interactive and interesting environment to teach history online. A considerable number of research studies were done in the field of online education focused on teaching literature in a foreign language. But Sri Lankan studies related this area were not recognized and at the same time online education focused on teaching history in a foreign language remains sparse.

METHODOLOGY

During teaching German language at the University of Kelaniya, it was observed that some students had hardships whereas some were interested in following the courses of literature and history in foreign language classrooms. Therefore, the research was conducted to discuss the following issues:

1. How efficient is online learning over traditional learning in a foreign language classroom with regard to teaching history and literature?
2. What are the effective teaching strategies used in the virtual foreign language classroom to teach literature and history?

RESULTS

Figure 1 shows the results of the assignment marks obtained by the students for German literature during their face-to-face and online sessions. The percentage of A+ during the face-to-face sessions has increased from zero to 16.66% and the percentage of A from 33.33% to 50% after the online sessions. The percentage of lower grades B+ and B has decreased from 33,33% to zero percent and 16,66% to zero percent respectively.

30 Undergraduates at the University of Kelaniya, who follow the four-year special degree program in German for their Bachelor of Arts Degree were selected. The first group, who are the third years consisted of 24 students and the group 2, who are the fourth years consisted of 6 students (total amount of fourth years of German as a foreign language). The performance of group 1 was tested for the German history course unit and the group 2 was tested for the German literature course unit. The research was planned to compare the efficiency of the students before online lessons and after the online lessons. The qualitative data were collected through observations and the quantitative data were collected through assignment marks of the students. Three assignment marks of each student during the face-to-face sessions and three from the online teaching sessions were selected. These marks were used to calculate the average mark of each student. The grades related to the average mark were compared to show the results. The marks were given out of 100. The mark ranges are: 85-100= A+, 70-84= A, 65-69= A-, 60-64= B+, 55-59= B.

Figure 1: Student Performance in German Literature

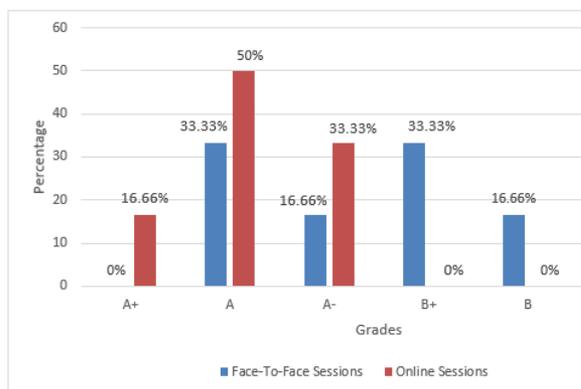


Figure 2: Student Performance in German history

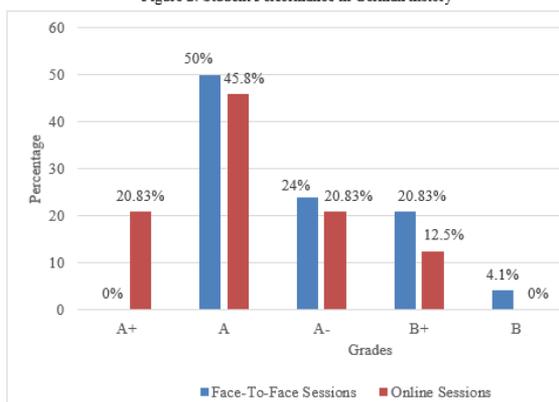


Figure 2 shows the results of the assignment marks obtained by the students for German history during their face-to-face and online sessions. The percentage of A+ has increased from zero percent to 20,83% after the online sessions. The percentage of lowest grades B+ and B has decreased from 20,83% to 12,5% and 4,1% to zero percent respectively after online sessions.

Observations

1. Students were not bored anymore during virtual literature and history lessons.
2. Self-directed learning
3. The breakout sessions made the lecture more interesting and interactive.
4. The repetition method used by the lecturer was more successful than in the face-to-face sessions, because the student's memory power was higher than in the face-to-face lessons, as there was no transport stress and other time and place limitations.
5. Showing videos and pictures related to the lessons online were easier than in the face-to face sessions.
6. Improvement of communication skills.
7. Power cuts and internet connection issues

8. Complaints regarding the absence of eye contact with the lecturer.

DISCUSSION

When considering the results of figure 1, it is clear that the higher grades have increased and the lowest grades have disappeared after the online sessions. Therefore, a total increase of the student's performance in the German literature classroom can be seen after the online lessons.

According to the figure 2 grade A+ is not recognized during the face-to-face sessions, whereas it has gained a percentage of 20.83% after the online lessons. A slight decrease of grade A is recognized during the online sessions, which is a decrease of 8.4%. The grade B+ has a decrease of 37,5%. The lowest grade obtained during the face-to-face sessions is B and it has disappeared after the online sessions. Although a huge difference cannot be observed between the both sessions, an increase of the highest grade and the absence of the lowest grade shows an increase of the performance of the students during the German history lessons.

When paying attention to the observations, it is clear that many improvements have taken place. And few

drawbacks were too observed. Other than teaching online, the strategies used by the lecturer caused these improvements. The strategies used were as follows:

1. Student Centered Learning
2. Summarization of the texts- students are asked to summarize texts by themselves and present in the classroom
3. Allowing the students to work in groups in online platforms.
4. Spaced Repetition method for vocabulary improvement.
5. Showing videos online related to literary works or historical incidents
6. Engaging students in communication activities.

It is believed that the subjects like history cannot be taught online, as the environment of a traditional history classroom cannot be replaced by the online classroom. (Lyons, 2009). But the present study shows an improvement of the student's knowledge of history in a virtual foreign language classroom. However, Lan Lancashire (2009) and Robert Blake (2011) accept the fact that, teaching language and literature online in a foreign language classroom is successful when the digital tools are used in a correct manner. The strategies used by the lecturer even play a main role in this result. Proving this fact, the recent study of Carrió-Pastor (Carrió-Pastor, 2020) mentions that, to teach literature or language virtually, the researcher as well as the teacher should pay attention to innovate new strategies.

CONCLUSIONS

The study shows positive results of virtual foreign language literature and history teaching. It introduces effective strategies to be used during teaching these

subject areas for small groups of German learners.

The strategies used during the online sessions played a main role to make this mode of instruction successful. It is clear that some strategies were not at all applicable during face-to-face sessions as the time and place is limited.

Furthermore, it is obvious that, although there are few drawbacks in online teaching, the student's performance is better than in the face-to-face sessions. Therefore, it is concluded that, teaching history and literature virtually in a foreign language classroom for small groups of university students using the above-mentioned strategies is more successful than teaching those subject areas in a traditional classroom.

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THE EFFECT OF COMMUNICATION ON ONLINE EDUCATION IN UNIVERSITIES IN SRI LANKA

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ABSTRACT

The Communication process between academics and undergraduates on online teaching and learning is very critical which needs a serious attention to understand the issues and advantages of communication process between academics and undergraduates. This study therefore conducts to approach four objectives: to understand the issues that academics face in Communication on online teaching, to understand the issues that undergraduates face in Communication on online learning, to identify the advantages that academics and undergraduates face in Communication on online teaching and learning and to determine the effect of Communication on online teaching and learning between academics and undergraduates in Sri Lanka. Quantitative Methodology and case study research method will use for the study. 06 state universities will select for the study (As 02 universities for each language program). The sample will collect by using the Stratified sampling technique, a type of probability sampling. This study will be useful for academics and university administrative for identify their issues and solutions. By referring this, students can further increase their understandings of online learning processes. It will be useful to Sri Lankan Government to understand the communication process on online learning. This study will be useful to Online learning software providers and internet service providers for identify their issues and solutions. By referring this, National and International researchers can get an idea about Sri Lankan online learning process and effects of communication between academics and undergraduates on online teaching and learning in Universities in Sri Lanka.

Keywords: Communication, Online Learning, Online Teaching, Sri Lanka, Universities

CRITICAL SUCCESS FACTORS IN ONLINE LEARNING: EXAMINING THE ROLE OF LEARNER SUPPORT

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ABSTRACT

Due to COVID 19 pandemic all conventional and other government and private universities transformed their delivering method to online. As the current situation in Sri Lanka has motivated them to promote E-Learning platforms for distance learning, most state and private institutes were taken timely steps to adapt courses for E-Learning with their own systems by following systems used in more developed countries. Providing needs of the online learners is a vitally important component of delivering quality online education. Provision of basic needs through learner support service should be done according to the fitness for purpose as it contributes to academic, personal, and career development of students and assists them in overcoming the inherent difficulties of studying at online largely because of feelings of isolation. Success factors should be provided to support self-learning in each institution for the students. Success factors can be related to the mainly faculty, administration and library etc. This study will be conducted to examine learner perceptions on critical success factors with respect to the learner support services offered to online learning environment at universities in the country. The main aim of the study is to develop the online mode teaching and learning system in the country to create supportive environment for the learners as it is new concept for the conventional learners. The study is ongoing study and purpose is to investigate the challenges in the emerging field of online learning and its support services in Sri Lanka.

Keywords: Critical Success Factors, Learner Support, Online Learning, Universities

A STUDY ON TRANSFORMATION ROLE IN PRE-SERVICE TEACHER TRAINING OF ONLINE TEACHING PRACTICE

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ABSTRACT

Since National Colleges of Education that implement the Pre -Service Teacher Education in Sri Lanka are closed temporarily due to Covid -19 pandemic, the Prospective Teachers are engaged in Online Learning Teaching process. Online Learning Teaching Process is a novel experience not only for Prospective Teachers but also to the lecturers as well. Prospective Teachers played transformation role facing the students in learning teaching process experiencing the student's centered context, utilizing visual aids in the authentic classroom. This study is to examine how prospective teachers adapted to the transformation role engaged in online learning teaching process. Objectives of this study are to investigate whether the methodologies used by supervising lecturers in online learning teaching enhance the transformation role of prospective teachers., to examine whether prospective teachers followed the transformation role to the expected level when engaged in online learning teaching practice and to study the issues and challenges encountered by prospective teachers as well as lecturers in teaching practice .The Mixed method comprising qualitative and quantitative methods is expected to be used . 2nd year prospective teachers in Science, Mathematics classes in Siyane National Colleges of Education in Gampaha District will be selected using the Stratified Random method. Data will be collected using the observations, questionnaire and interviews, and the collected data will be analyzed qualitatively and quantitatively in par with the expected objectives, followed by the suggestions and the recommendations. In a period of time in which a dialogue is proceeding on Online Learning, researching on Online teaching practice has been a timely requirement. It is interested to find to which aspect of learning teaching process is well appropriate for Online Learning Teaching. Findings will address the challenges of delaying recruitment of Prospective Teachers, offering a vivid concept to teacher educators, administrators, educational leaders, policy makers of education System. This ongoing study will expect constructive comments to enrich the research process.

Keywords: National Colleges of Education, Pre service Teacher Training, Online Learning Teaching Process, Transformation Role

SAFETY TRAINING ON SAFETY PERFORMANCE OF EMPLOYEES: ANALYSIS OF LANKA SUGAR COMPANY (PVT) LTD

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ABSTRACT

The main purpose of this research was to examine the impact of safety training on safety performance of employees in Lanka Sugar Company (PVT) Ltd. Safety is a critical component of the entire manufacturing organization. The purpose of the study was identified the research gap, human plays the major role in each organization, different organization using the different method to safeguard employees from hazards. Consider the Sri Lankan context, the dearth of research being done on this topic. The objective of the study is to identify the factors that contribute to safety training and safety performance, to discover the relationship between safety training and safety performance and to identify the extent to which safety training supports the safety performance of employees. Conceptual variables are safety knowledge & skill transfer, safety work practices, safety & risk understanding and safety performance. The data was collected from eight department of the factory employees. A stratified random sampling method was used and 97 employees responded. Reliability testing was performed to verify the reliability of all elements of the finding aid, and the reliability was 0.768. Hypothesis tested by the correlation coefficient, it indicated that there was a positive correlation between safety training and safety performance. This research would be useful for the organization and practitioner to enhance safety performance through safety training.

Keywords: Safety training, Safety performance, Safety procedure

INTRODUCTION

Take into account human behavior, they play the major role in accidents and injuries in the workplace, this can include risky behaviors and signal detection failures, as well as a lack of proactive and collective safety behaviors focused on changing the work environment to increase safety (Ford & Tetrick, 2008). To solve the issues management maintains safety interventions such as safety committee, training, suggestions, risk assessment, audit, incentive program, factory inspection, work permit system and standard operating procedures (Kalia, 2011). In the mean time employees must have the knowledge and skills to perform their jobs safely. This can be accomplished through proper safety training and continuous updating of employees on safety issues (Ford & Tetrick, 2008).

Lanka Sugar Company (PVT) Ltd could be a Sri Lankan sugar producing company, which is listed on the Colombo securities market, approximately 3,953 employees working in five departments; Department of Agriculture, Department of Finance, Department of Human Resources, Department of Factories and Department of Distillery (Annual Report, Lanka Sugar Company Pelwatte, 2019). Dearth of research conducted in the Sri Lankan Sector related to safety training and safety performance. Therefore, it is very

important to have effective safety training programs to improve the knowledge of employees and also to get better safety performance from them. Therefore, the problem with the study is that,

“To what extent the safety training program has an impact on safety performance of employees in Lanka Sugar Company (PVT) Ltd”

Objectives of the study

- To identify the factors that contribute to safety training and performance.
- To find out the relationship between the safety training and safety performance
- To identify what extent to which safety training supports the safety performance of employees in an organization

LITERATURE REVIEW

Safety training could help employees acquire knowledge, improve their skills and adopt a more positive attitude, as well as make them competent in the performance of their safety and health duties (Health Safety Executive, 1997). Safety training practices dimensions identified by Bahari (2011), such as knowledge & skill transfer, safe work practices and safety & risk understanding.

Safety performance is perhaps best defined by the extent to which an individual engages in behaviors that increase the safety of the individual and the organization and avoids behaviors that decrease the safety of self and the organization (Ford et al., 2008). Several attempts have been made to measure safety performance and results revealed that safety performance consists of two dimensions, safety compliance and safety participation (Zohar, et al., 2008).

Relationship between safety training and safety performance

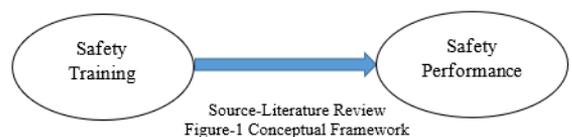
Safety training practices enable employees to perform their daily tasks safely and competently (Sari, 2009; Antonio et al., 2013; Bahari, 2013; Harrington et al., 2013; Bahari, 2013; Harrington et al. Walker, 2005). For this reason, safety training practices function as a major practice in reducing incidents in the workplace, with the ultimate goal of increasing safety performance (Wameedh et al., 2011; Health and Safety Executive, 2011; Burke et al., 2011; Choudry et al., 2008). Safety training has been identified as one of the most important safety management practices capable of influencing high performance safety outcomes in all sectors (Manu, Mahamadu, Ath, Heng, & Kit , 2017; Marín et al., 2017; Rose & Rae, 2017). Based on the above concepts hypothesis has been formulated in the following way:

H1: There is a significant relationship between the safety training and safety performance.

METHODOLOGY

Conceptual framework

Based on the literature review, the following conceptual framework has been formulated by the researcher



Research design

The population & Sampling

The total number of staff of Lanka Sugar Company (PVT) Ltd is 3,953, while the factory department was 566 (Master file, 2020). The target population for this study are workers from the factory department of Lanka Sugar Company (PVT) Ltd. The sample table is given below.

Table-1 Sample selection

S/N	Section	Total	Sample
01	Factory Admin	24	04
02	Engineering	217	38
03	Production	149	26
04	Process Quality Assuring Unit	30	05
05	Quality Control	53	09
06	Electrical	37	07
07	Building	46	08
08	Landscape	10	03
Total		566	100

(Source: Employee Master file, Lanka Sugar Company Pelwatte 2020)

Sampling method:

Sample selected based on the stratified random sampling. Questionnaire prepared on the basis of the five-point likert scale (Strongly Disagree-1, Disagree-2, Neutral-3, Agree-4, and Strongly Agree-5) method and issued questionnaire 120 only for factory workers, received from 97 questionnaires from respondents.

RESULTS AND DISCUSSION

Discuss the demographic information, in the gender category, 21% of women and 76% of men responded to the questionnaire, among which most of the employees belong to the 30-39 and 40-49 age group. They studied below O / L, O / L, advanced level and etc. Consider the work experience that most 6-10 years have found. The results of the survey shown that most of the respondents participated in the training on safety, emergency measures and first aid. Others involve in house training, lockout and tag out, and the forklift training program. The training period had varied depending on the work section.

Analysis of Reliability

The following table explains the reliability.

Table-2 Reliability Test

Cronbach's Alpha	N of Items
.768	28

Source-Survey data

Correlation analysis
Table-3 Correlations
Pearson Correlation Analysis

Analysis	Pearson Correlation	Sig. (2-tailed)
Knowledge & Skill transfer	.463**	.000
Safety work practices	.446**	.000
Safety & Risk understanding	.660**	.000

*Correlation is significant at the 0.05 level (2-tailed)

**Correlation is significant at the 0.01 level (2-tailed)

According to the correlation analysis all three variables having the positive relationship with safety performance.

Regression Analysis

Table 4: Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.735 ^a	.541	.523	.376

a. Predictors: (Constant), Safety & Risk understanding, Knowledge & Skill Transfer, Safety work practices

The coefficient of determination of R², 0.541 means that 54.1% of variability in safety performance is explained by the selected factors. Furthermore, knowledge & skill transfer, safety work practices and safety & risk understanding have a significant influence on safety performance.

CONCLUSIONS

In the overall analysis, take into account the transfer of knowledge and skills and the safe work practices to be improved. Organizations implement a systematic, comprehensive safety training program for all employees. Then can be expected high level of safety performance from employees. This study was carried out with Lanka Sugar Company (PVT) Ltd. It is suggested that future studies should extend to different organizations that are highly exposed to safety issues.

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IMPACT OF COVID-19 PANDEMIC ON THE CONSTRUCTION INDUSTRY IN SRI LANKA

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ABSTRACT

In December 2019, the World Health Organization (WHO) recognized the threat of the Coronavirus (COVID-19) outbreak and the likelihood of its spreading worldwide as a pandemic. Since early 2020, many countries adopted drastic measures to contain the spread of the disease which showed remarkable virility and for which at the time, there were no known vaccines. The construction industry was one of the sectors classified as non-essential services and the industry was compelled to shut down construction sites as a temporary measure in compliance with stringent health regulations that were in place. This study attempts to analyze and address some of the critical issues that the construction industry will be facing as a result of the COVID-19 pandemic. A series of questions were posed to leading personnel in the Construction industry and their responses were tabulated and classified. By analyzing the responses, the research attempts to conclude as to the impact, control measures, and recovery plans that the industry should contemplate for the immediate post COVID era.

Keywords: COVID-19, Construction Industry, Post COVID

INTRODUCTION

Initial reports of infections from SARS-CoV-2 were received from Wuhan, China. How the virus is transmitted to humans remains unclear, as well as whether the

virus became pathogenic before or after the spillover event. As recorded by Zheng (2020), medical sources in China identified and sequenced the virus responsible for COVID-19, named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and classified the disease as a novel coronavirus that shares similarities with bat and pangolin derived SARS-like coronaviruses, prompting a zoonotic origin. As recorded by The World Health Organization (2020), it was officially announced on March 11th, 2020, that the outbreak of "Corona Virus Disease 2019" (COVID-19), which was initially identified in Asia, had become a pandemic. Most countries introduced drastic measures to control the spread of the disease while investing heavily in research to find an effective vaccine. Some of the controlling measures taken were curfews where disease hotspots and clusters were identified, as well as lockdowns and restriction of movement of people and goods. Ferrer, et al. (2021), reports that as a result of the pandemic, industry, and business suffered and there was widespread disruption to society and lifestyle. As the net outcome, many countries faced recession and economic downturn. Although businesses around the world and companies achieved some form of mobility through the Work-From-Home (WFH) concept of remotely accommodating and continuing business functions, the general unpreparedness of the situation was a negative factor.

It is identified by Alsharef, et al. (2021), that the impact of the pandemic and resulting health measures on the Construction sector is expected to be high in the immediate aftermath due to many internal and external constraints. Some of the prominent internal constraints are health and safety concerns, human resource procurement anomalies, site maintenance and security provision, H&S risks, fixed overheads, materials deterioration at closed sites, time loss accruing from workforce absenteeism due to illness, retention of key skilled employees, working capital and liquidity pressures, restrictions on funding access may also result in delays longer than anticipated, etc. It is further stated by Zhou, et al. (2021), that the same will require strict compliance with quarantine and health regulations which could be a complicated task.

According to Ogunnusi, et al. (2020), some of the external constraints on-site operations are, quarantine procedures and lockdowns, delays in supply chains, material, equipment & labor price escalations, disputes due to cash disbursement breakdown, large scale public sector construction activities getting canceled, or postponed, domestic real estate market stagnating, etc. Biswas, et al. (2020), further states that it is having a significant impact on the industry is loss of business due to construction and related infrastructure projects like roads, irrigation, and electricity are slowing down as well as constructions related to leisure projects, manufacturing, and housing and condominiums, being stopped temporarily. Pathirana (2020), identifies that the impact on cash flow would be inevitable in the face of the developments and their impact on business. To provide short-term relief, the Central Bank of Sri Lanka granted a series of facilities to small and medium scale companies such as working capital loan

schemes and investment purpose loan schemes to tide over the difficult period. Another matter of concern as highlighted by The Asian Development Bank (2020), is the connections the construction industry has to other parallel industries like cement, paints, building materials, cables, electronic items, and chemicals that principally depend on raw materials imported from other countries. Shipping restrictions and depreciation of the local currency have a negative impact as imports will cost extra for the industry (Majumder & Biswas, 2021). Although other industries have been able to benefit from remote working practices, according to Stiles, et al. (2020), another peculiarity of the construction industry is, almost all the workers and technical engineers are required to work on-site either to perform activities or to monitor the work done (Vithana, et al., 2020). Therefore the objective of this research is to obtain the opinions of experts in the construction field from different operational units, on 10 common aspects of the situation and draw a common strategy to plan for the post covid era to pull the industry from difficulties.

METHODOLOGY

The methodology that was followed in this research is interviews that were conducted with five industry professionals. Both structured and non-structured questions were posted on the selected industry professionals and the results that were obtained from them were analyzed.

RESULT

The responses that were received from the five respondents are summarized in the table given below.

Table 1: Summary of responses from participants

Question	Responder 01	Responder 02	Responder 03	Responder 04	Responder 05
Effect on the construction industry.	Crippling effect on the Construction Industry.	Construction work had to be immediately stopped to abide by health regulations.	Shut down of ongoing construction work.	Impact on the stakeholders of construction projects.	Shut down of ongoing projects was a hit on the industry.
Steps that have been taken in the industry.	Government support for loans and taxes.	Maintaining lower levels of employees on site.	Keeping finances on target and cash flow rotating.	Social distancing and sanitary measures have been taken.	Conserve finances for immediate requirements.
Factors that had the most adverse impact.	Financial and liquidity.	Global situation and lack of investor confidence.	Supply chain problems.	Financial and liquidity fraud theft risks.	Impact on productivity reduction.
Priority activities during the pandemic.	Protection of worker health.	Plan for recovery control finances	Plan for business continuity.	Divest non-performing assets.	Manager finances and liquidity.
H&S precautions have been adopted in the industry.	Social distancing and improved sanitization provisions.	Manage through remote connectivity.	Training for employees and staff.	Regular employee health checks.	Adhering to health guidelines.
Financial impacts on the construction industry.	Inability to complete projects on time.	Banks being more stringent with credit customers.	Debt recoveries slowing down and credit lines freezing up.	Litigations for non-payments.	Increased site costs and supply chain breakdowns.
What construction companies need to do now.	New processes need to be implemented as we start to live with the pandemic.	The construction industry needs to reshape traditional norms.	Remote management and sub-contracting is gaining popularity.	Health factors need to be taken into serious consideration.	Pertinent to consider new working model.
Strategies to ensure a	Reduce traveling of staff. Virtual	Remote and online working	Development of new processes.	Consolidate financial position and	Strengthening financial position and

strong recovery.	meetings are being used.	practices. Development of new products.		building resilience.	using online transactions.
Positive developments in the industry	Improved productivity. Cut down on travel costs.	Monitoring H&S of employees	Focus on resilience and suitability	Focus on financial stability.	Operational procedures and safer working environment.
How do you see the post-COVID-19 norm?	Improve flexibility to react swiftly.	Improvement of methods of financial stability.	Investment in digitization technology and exploring AI in construction.	Development of sustainable systems and robotic technology.	Increase R&D strategies.

DISCUSSION

The construction industry faced many challenges related to continuing its business operations during the pandemic. Construction sites faced many challenges such as financial issues, employee health, and safety as well as impacts on the stakeholders of construction projects. One of the critical issues faced by the industry is that supply chains were disrupted as island-wide curfews were imposed in the country. Further, construction projects had to shut down their operations during the lockdown that was imposed in the country. It was also identified that productivity levels of site employees started decreasing resulting in a crippling effect on the industry at large. Although the government did take necessary actions towards supporting the industry and its sustenance, from the discussions that were conducted, it was identified that most of the actions that were needed to be taken were the responsibility of the construction industry and its organizations. Further, it is also recognized that some of the possible strategies that the industry could

develop to face the post COVID era include, development of remote working practices for site monitoring considering robotic and AI technology for site operational work, ensuring health and safety practices are in place for all construction workers and the development of new construction products and processes that will enhance the efficiency while reducing the need to human interactions. Research and development which is one of the vital aspects that needs to be considered by the industry for its long-term development within the industry are considered vital to be able to face the challenges that the industry is currently facing.

CONCLUSIONS

The objective of this study that was conducted was to be able to obtain a qualitative understanding the impacts on the construction industry in Sri Lanka, due to the pandemic, what measures are taken to face the challenges imposed, and thereby identify the strategies that the industry could take, to face the post

COVID era, successfully. Due to travel restrictions and since the survey was conducted during a period where the country is facing a pandemic, the survey was limited to telephone interviews with industry experts. Therefore, it can be stated that the findings from this study could be applied for the benefit of the construction industry in Sri Lanka and necessary action and strategies to be implemented to face the post COVID era. The qualitative findings of this study can be further extended to identify the impacts on the construction industry, measures to be taken, through a quantitative analysis.

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EXPLORING ENTREPRENEURSHIP INTENTION AND ENTREPRENEURSHIP ENGAGEMENT OF TECHNOLOGY UNIVERSITY STUDENTS

Lilanka De Silva, Dr. Ravindra Koggalage

ABSTRACT

Entrepreneurship contributes to the development of a country in terms of economic growth and job creation. Technology and innovation can be used to enhance entrepreneurship. Technology Universities provide technological knowledge enabling students to engage in innovation and entrepreneurship. Few researches have been conducted on entrepreneurship intention of technology universities. This study aims to explore the entrepreneurship intention, entrepreneurship engagement level and factors effecting entrepreneurship intention of technology university students. According to the research findings, entrepreneurship intention of technology university students during study period is 54.7% and entrepreneurship engagement during study period is 40.53%. Age category, attitude, entrepreneurship education, entrepreneurship orientation, failure tolerance of the society, improving quality of life, improving standard of life, influence of lecturers, level of finance, motivation factors, perceived abilities, personality factors , program type, status of work, technology literacy and work experience are the factors effecting on entrepreneurship intention of technology university students. Out of the factors the impact of failure tolerance of the society is negative on entrepreneurship intention of technology university students.

Key words: Entrepreneurship intention, Entrepreneurship engagement, Technology universities, Factors effecting entrepreneurship intention

UMBILICAL CORD MESENCHYMAL STEM CELL MODULATE REGULATORY T CELLS IN ALLERGIC RHINITIS RAT MODEL

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ABSTRACT

Introduction: Mesenchymal stem cells (MSCs) have been expandingly explored as potential immunomodulatory properties; however, it remains unclear whether umbilical cord mesenchymal stem cells (UC-MSCs) could be used to treat acute allergic rhinitis (AR). This study aim to defined the effect of UC-MSCs in treating AR through regulating the regulatory T cells (Treg).

Keywords: Allergic rhinitis, stem cells, umbilical cord, allergic diseases, nasal symptom, regulatory T cell, mast cell

METHODS

Thirty Wistar strain rats AR model were established by given 1mg ovalbumin (OVA) with aluminium hydroxide in saline intraperitoneal injection and nasal drop challenge with 100µg/10µL OVA. Preparation of UC-MSCs from rat have been provided for experimental and clinical research. An allergic rhinitis rats were treated with UC-MSCs with outcome of UC-MSCs on the inflammation was examined by sneezing, nasal rubbing, and the number of mast cell in the nasal mucose on the first and seventh day after UC-MSCs injection. T reg from PBMC were measured with flow citometry. Data were analysed statistically with ANOVA and Post-Hoc test.

RESULTS

It was found that the symptom and mast cells in treatment group was significantly lower than control group ($p < 0.05$). The number of Treg in the treatment group was significantly higher than the control group ($p < 0.005$) on the first and seventh day.

Conclusion: Based on our research, UC-MSCs promising in treating AR through inducing Treg and inhibiting mast cells in AR rats.

UMBILICAL CORD MESENCHYMAL STEM CELL REDUCE α -SMA IN DIABETIC ERECTILE DYSFUNCTION RAT MODEL

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INTRODUCTION

Mesenchymal stem cells (MSCs) have been widely studied as a potential regenerative medicine; however, it remains uncertain whether umbilical cord mesenchymal stem cells (UC-MSCs) could inhibit fibrotic in diabetic erectile dysfunction (DED). The main purpose of this study was to investigate the role of UC-MSCs in treating DED without fibrosis.

METHODS

Twenty Wistar strain rats Diabetic erectile dysfunction model were established by given with 60mg/kg Streptozotocin (STZ) intraperitoneal for diabetes mellitus type 1 and validated with 100 μ g/Kg Apomorphin (APO) for erectile function test. Preparation of UC-MSCs from rat have been provided for experimental research. A DED rats was treated with two doses of intra cavernosum UC-MSCs, 1X106 (T1) and 3X106 (T2). The outcome of UC-MSCs on fibrotic tissue of DED was examined by the number of α -SMA and collagen in the corpus cavernosum and also erectile function. Data of α -SMA, collagen and erectile function were analysed statistically with ANOVA and Post-Hoc test.

RESULTS

It was found that α -SMA and collagen of the treatment group was significantly lower than control group ($p < 0.05$). There were higher erectile function improvement on treatment group than the control group on both doses, and optimum results in a dose of 3X106 UC-MSCs.

CONCLUSION

Intra cavernosum UC-MSCs inhibited α -SMA and collagen in DED model.

Keywords: Diabetic erectile dysfunction, stem cells, umbilical cord, α -SMA, collagen

**NONWORD REPETITION BY SINHALA-SPEAKING 4- AND 5YEAR OLD
CHILDREN IN SRI LANKA: THE CONTRIBUTIONS OF PHONOLOGICAL
PROCESSING AND PHONOLOGICAL STORAGE TO RECALL ACCURACY**

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ABSTRACT

Nonword repetition (NWR) is a straightforward task in which a listener is asked to repeat pseudo words that sound like real words. Poor performance on this task has been found to be a clinical marker of Developmental Language Disorder (DLD). This study aimed to investigate the contributions of two processes, phonological processing and working memory, to the performance of a NWR task developed in Sri Lanka. Participants were 84 Sinhala speaking, typically developing children (42 4-yr olds and 42 5-yr olds). This convenience sample was recruited from preschools and schools in the Kelaniya Educational Zone of the Gampaha District. The Pseudo-word Repetition Test in Sinhala was utilized to assess nonword repetition. This test comprises 4 sets of nonwords, each 10 words, containing 1, 2, 3, and 4 syllables respectively. Factorial repeated measures ANOVA revealed an age by syllable length interaction, with the older group outperforming the younger group only at 3-syllable ($p=.0001$) 4-syllable ($p=.001$) levels. Follow-up analyses indicated that the 4-year olds made more errors than the 5-year olds on the initial syllables of longer nonwords. Furthermore, the younger group had greater difficulty in repeating initial heavy syllables. The most common type of error made on these syllables was vowel and consonant substitutions ($p=.002$). The current results suggest that 4 – year old children continue to make phonological processing errors despite their ability to repeat 4-syllable long nonwords. This raises the question whether older children with language delay display a comparable pattern, which we plan to address.

Keywords: Nonword repetition, Sinhala language, typically developing children, Developmental Language Disorder, phonological processing, working memory

ASSESSMENT OF COMPUTER AND BIOSTATISTICS COMPETENCE IN UNDERGRADUATE MEDICAL STUDENTS

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ABSTRACT

The importance of computer and biostatistical methods has been increased from the last two decades in medical research and clinical trial. Knowledge of basic computer and basic biostatistical methods are essential in the medical research to interpret, analyse and present the data. Considering all the above points, we made an effort. To Assess the competence of under graduate medical students in basic computer, basic statistics and biostatistical methods. This study was a cross sectional study, conducted during January 2021 to March 2021. By cluster sampling procedure 200 study participants was selected. 50 study participants were selected from each MBBS year. Only those participants were included in the study who has attended all the basic computer and basic biostatistics classes. The data was analysed by using SPSS software with version 23. From the 200 study participants, the scores of pre and post tests of basic knowledge of computer is 4.38 ± 0.32 and 8.8 ± 1.49 followed by basic biostatistical methods is 3.52 ± 0.63 and 9.04 ± 1.87 both having significant difference in the mean scores for pre and post tests at $p < 0.001$. Basic knowledge of computer and biostatistical methods are mandatory in the medical research, it is necessary as to be update in academic and professional career. New curriculum of medical education, National Medical Council of India introduced the foundation course in computer this will help in enhancing the performance of medical

students so they will be at par with the global standards.

Key word: Biostatistical, computer, MBBS, SPSS.

INTRODUCTION

Statistics is the integral part of the medical research. According to H.G.Wells, Statistical thinking will one day be as necessary a qualification for efficient citizenship as the ability to read and write. It is very important for medical researchers to be literate in computer and biostatistics, as biostatistics is frequently used in medical research to design and data analysis. Statistics is the discipline that concerns the collection, organization, analysis, interpretation, and presentation of data [1]. From the past three to four decades in the scientific and research studies the statistics and various statistical methods have been accepted as a powerful tools and it is documented in the medical journals [2-4]. Statistical tools are a cross-disciplinary tool used in medical science, biology, statistics, and social sciences. Hence the demand of statistical application software has been increased due to easy understanding and easy availability.

In developing country like India the use of Information technology has increased tremendously and with the advance in medical research where most of the information is easily available on the internet, there is increase in the number of

medical students using computer and internet to upgrade the knowledge and skills [5-6]. Computer skills are essential in the field of medical research to improve the quality of health care, information technology and information processing is very essential in the medical research studies. The computers and information technology represent an essential part of every sphere of human life and process of education/learning in the twenty first century [7].

Research-oriented medical education is very important in undergraduate medical student, they should have knowledge of basic computer, basic biostatistics methods and basic statistical software. Teaching and training of basic computer skills and various methods in biostatistics will increase the standards of research in undergraduate level and also should upgrade themselves to global standards.

METHODOLOGY

Present cross-sectional study was conducted during January 2021 to March 2021 at MR Medical College Kalaburagi, Karnataka State, India. Institutional Ethics Committee clearance was obtained prior to start the study. By cluster sampling procedure 200 study participants was selected. 50 study participants were selected from each MBBS year (MBBS-I, to MBBS-Final year). Only those participants were included in the study, who has attended all the basic computer skill, basic statistics and biostatistics methods classes. A pilot study was conducted on 10 students and based on pilot study result, modifications were made in the questionnaire. The validity and reliability (test-retest reliability) of the questionnaire was tested. Internal consistency reliability by Cronbach's-alfa coefficient was 0.74. Total 21 questions were asked to the students in which 11 questions are related to the basic computer skills and 10 questions are related to basic

statistics and various biostatistical methods. The questionnaire consisted of information regarding basic computer skills, computer activities, computer training, internet, sources of information and basic statistics, various biostatistical methods and knowledge of statistical software applications, sampling designs, and study designs, sample size. Data collected during the present study was kept confidential. The skills related to basic computer, basic statistics and various biostatistical methods were assessed on visual analogue scale (VAS) scale of 0-10 where zero stands for no satisfaction and ten stands for complete satisfaction. The descriptive statistics were calculated. The t-statistics were calculated to test the statistical significance at $p < 0.001$. The statistical software SPSS version 23 was used for data analysis.

DATA ANALYSIS

A total of 200 undergraduate medical students were participated in this study. The collected questionnaire information was coded systematically and entered the coded values in the Ms-excel sheet each scores were entered according to VAS as mentioned in the methodology. The data was tabulated and the frequency distribution table was constructed. The results analysed as follows. The scores of participants with basic computer knowledge and statistical methods are shown in the Table-1 and Table-2. The pre and post test result scores of computer knowledge is 4.38 ± 0.32 and 8.8 ± 1.49 followed by scores of knowledge of various statistical methods is 3.52 ± 1.63 and 9.04 ± 1.87 , this clearly shows that, there is increases in the scores after attending the basic computer skills, basic statistics and various statistical methods classes and also shows that there is significant difference in the scores of computer skills, basic statistics and

knowledge of statistical methods in pre and post tests. Table-3 showing the comparison of basic knowledge of computer and knowledge of various statistical methods it shows that there is significant difference between the knowledge of computer and knowledge of various statistical methods in pre and post test at $p < 0.001$.

DISCUSSION

The present study is an attempt to explore the information on competency of medical students in learning of basic computer skills and basic statistical methods and another aim of the study was to develop the students' skills in the field of computerized data analysis and various basic statistical methods. A cross-sectional, descriptive study was conducted with 200 undergraduate medical students. The II and III MBBS students utilized more hours for learning computers and basic statistical software than IV and first year students this might be due to more syllabus to be covered in less time. Our findings and Knapp and Miller III thought that teaching computer and biostatistics to medical students was effective and feasible in wide spread of medical practice as well as the easy availability of statistical software [8]. The computer based statistics teaching is more effective in the undergraduate medical students similar findings from Hutton Jr. et al. found that a computer-based biostatistics course was as good as an equivalent course given as a series of lectures, considering measures that are both objective and subjective [9]. In our study we asked the importance of data analysis and statistical reporting for the small project to the undergraduate medical students similarly reported by Hewett and Porpora the students are not only taught with the aid of computerized and statistics lessons, but they have to do an entire project, including data analysis [10]. By J.Astin.T et.al and M.Rahman

et.al found that medical students themselves do understand the importance and need to learn biostatistics a similar theme that was also found in our study [11, 12]. In our study we found importance of advanced computer based data analysis and statistical procedures were helpful for future medical research studies, similar findings from the Ambrouius and Manatunga [13]. In the new curriculum of medical education, the National Medical Council of India (NMC, India) introduced the foundation course in basic computer this will help in enhancing the performance of medical students so they will be at par with the global standards [14].

CONCLUSION

Our study reveals that, the pre and post scores of basic knowledge of computer is 4.38 ± 0.32 and 8.8 ± 1.49 followed by basic biostatistical methods is 3.52 ± 0.63 and 9.04 ± 1.87 there is a significant difference between the scores for pre and post test. Our study result shows that, there is improvement in the knowledge of basic computers skills, basic statistics and various biostatistical methods after teaching and training classes. In the new curriculum of medical education, the National Medical Council of India (NMC, India) introduced the foundation course in basic computer this will help in enhancing the performance of medical students so they will be at par with the global standards. It is necessary as to be update in academic and professional career. Further attempt should be made to know competency of medical students in learning basic computer skills, basic statistics & various biostatistical methods from the different medical colleges in India.

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Table No.1 Knowledge of Basic Computer Pre-test and Post-test Scores

Pre-Test Basic Computer skills Scores	Post-Test Basic Computer skills Scores	't-test' value	p-value
4.38 ± 0.32	8.8 ± 1.49	38.63	p<0.0001

*p<0.01 is statistically significant.

Table No.2 Statistical Methods Pre-test and Post-test Scores

Pre-Test Basic Statistics & biostatistical methods Scores	Post-Test Basic Statistics & biostatistical methods Scores	't-test' value	p-value
3.52 ± 0.63	9.04 ± 1.87	31.46	p<0.0001

*p<0.01 is statistically significant.

Table No.3 Knowledge of Computer and Statistical methods Pre-test and Post-test Scores

Basic Computer skills test-Scores			Basic Statistics & biostatistical methods test Scores		
Pre-Test Scores	Post-Test Scores	P-Value	Pre-Test Scores	Post-Test Scores	p-value
4.38 ± 0.32	8.8 ± 1.49	p<0.0001	3.52 ± 1.63	9.04 ± 1.87	p<0.0001

*p<0.01 is statistically significant.

**ASSOCIATION OF EMOTIONAL BEHAVIOR WITH NUTRITIONAL STATUS
AND REGULAR LIFESTYLE HABITS AMONG SCHOOLCHILDREN IN
GAMPAHA DISTRICT, SRI LANKA**

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ABSTRACT

Psychological development in school-aged children is one of the important factors for healthy growth, but little is known about the association of emotional behavior with nutritional status and regular lifestyle habits. We aimed to examine the relationship among mental health, nutritional status, and regular lifestyle habits among schoolchildren. Data obtained from a school-based cross-sectional study in the Gampaha district in 2017 were used in this study. A total of 508 schoolchildren aged 5-10 years were included in the analysis. Emotional and behavioral problems were assessed using the Strengths and Difficulties Questionnaire. Nutritional status was calculated using body mass index-for-age z-score (BAZ). Thinness was defined if BAZ <-2, while overweight including obesity was classified as BAZ >+1. Breakfast intake, daily moderate- to vigorous-intensity physical activity (MVPA), wake-up time and bedtime were considered as regular lifestyle habits. The mean total difficulties score (TDS) (standard deviation) was 12.0 (\pm 5.3), and the mean score of prosocial behavior was 7.4 (\pm 1.9). When adjusted for confounding factors, multiple logistic regression analyses showed that breakfast skipping was associated with high conduct problems score (adjusted odds ratio (aOR) 2.95, 95% confidence interval (CI) 1.50 to 5.77, p <0.01), while late bedtime was associated with low prosocial behavior score (aOR 2.43, 95% CI 1.17 to 5.02, p <0.05). Our findings suggest that the improvement of unfavorable lifestyle habits may help in reducing mental health problems in schoolchildren, but further study such as longitudinal studies is required to identify the mechanism.

Keywords: Mental health, regular lifestyle habits, nutritional status, school children, epidemiological study (3-5 keywords)

AN INVESTIGATION INTO THE PREVALENCE OF ARBUDA (CANCER) IN DEHAPRAKRITI (AYURVEDA GENOMICS)

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ABSTRACT

Ayurveda is one of the most powerful and sophisticated mind, body health system. It is proving various therapeutic measures for diseases, emphasizes promotion of health and prevention of diseases. The human body is derived from the specific combinations of five fundamental entities which are named as panchamahabhuta. Panchamahabhuta form the Tridosha (vata, pitta and kapha dosha), Dhatu (tissues) and Malas (wastes) of the human body. Tridosha carry out the physiological activities of the human body. As in Ayurveda, 'Arbuda' is one of the dreadful diseases which is originated by the imbalance of tridosha. Vitiating of tridosha, lead to jataragnimandaya (decreasing the digestive fire) and dathwagnimandaya (decreasing the fire responsible for body tissue formation) and lead to formation of Arbuda. The literary meaning of Arbuda is a lump or mass. It can be correlated with the cancers according to the modern sciences. The aim of this study was to determine the pervasiveness of Arbuda according to deha prakriti (body constitution). The study has been carried out as a cross sectional survey from a purposive sample of forty individuals from the outdoor patient cancer clinic at Bandaranaike Memorial Ayurveda Research Institute, Sri Lanka through and interviewed administered questionnaire. Data was analyzed by univariate and descriptive analyze method and the data reveal

majority of cancer patients (53%) represent pitta-vata prakriti. Vataja Arbuda takes highest value of 27.5% among all types of Arbuda. According to the results, it can be concluded that, those who having pitta-vata prakriti have highest tendency to develop Arbuda.

Key words: Arbuda, Prakriti, Tridosha

INTRODUCTION

Ayurveda is a natural health care system that originated in India more than 5000 years ago. Its main objective is to achieve optimal health and well-being through a comprehensive approach that addresses mind, body, behavior, and environment. Ayurveda emphasizes prevention and health promotion, and provides treatment for disease. Treatment of disease is highly individualized and depends on the psychophysiological constitution (prakriti) of the patient (Sharma, 2011).

Present day's life style is completely changed according to people requirements. Therefore, dietary pattern, life style, thinking and behavioral patterns are changed. It is not fitting for our normal physiology of the body. So that people manifest large number of non-communicable diseases. Out of them, Arbuda is one of the most dreaded diseases. It can be correlated with Arbuda in Ayurveda (Prasad, Manoran, Sahu & Deshpande, 1982). Charaka and

Sushrutrasamhitas, two well-known Ayurveda classics, describe cancer as inflammatory or non-inflammatory swelling and mention them as Arbuda (major neoplasm) (Sharma, 2011; Murthi, 2000). During Vedic period “Arbuda” was considered as a serpent like demon conquered by Lord Indra (moniarwilliams). On the other hand literary meaning of Arbuda is a lump or mass. According to the description given by Susruta, Cancer (Arbuda) is described in Ayurvedic classics as been large and round, immobile and deep seated tumor growing slowly, it is slightly painful but rarely suppurating (Murthi, 2000). The clinical condition of cancer can also be correlated to the Sannipata stage of diseases, where there is derangement of all Doshas (Prasad et al., 1982) Cancer in Sri Lanka is transient on the rise. The incident rate has doubled since the eighties, according to the last data compiled by the nation cancer control program (2006) statistics indicate that the number of cases and mortality rates from cancer have grown up since 2000 increase in incidence was higher for female at 79% in 2006, among women breast cancer was the most

prevalent at 27%, followed cervix uttering cancer 12%. Cancer as a life style disease with multi-factorial risk factors that can affect any part of the body (Nation cancer control program, 2006).

Aims and Objectives

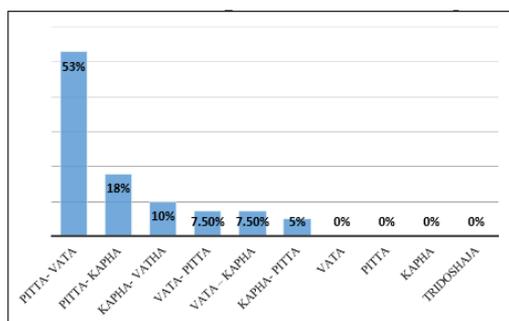
To identify the prevalence of ARBUDA (cancer) according to Deha Prakriti

METHODOLOGY

The literature review was done by using Ayurveda authentic texts (Vruhathraya, Kasypa samhitha, Madawa nidanaya) from the Library of Institute of Indigenous medicine, University of Colombo and the Bandaranaike Memorial Ayurveda Research institute, Sri Lanka and journal publications.

The study has been carried out as a cross sectional survey from a purposive, random sample of forty individuals from the outdoor patient cancer clinic at Bandaranaike Memorial Ayurveda Research Institute, Sri Lanka through and interviewed administered questionnaire and analyzed the collected data.

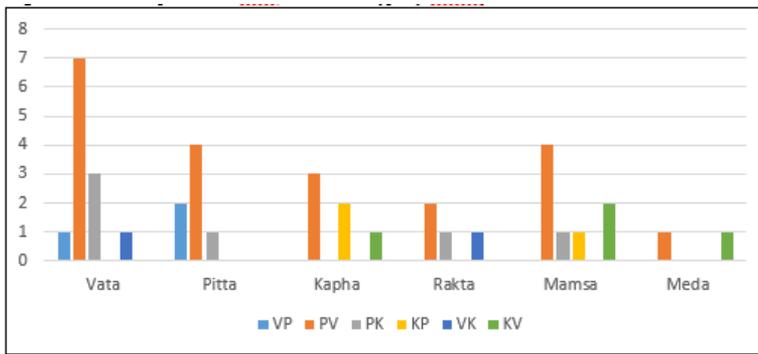
RESULTS



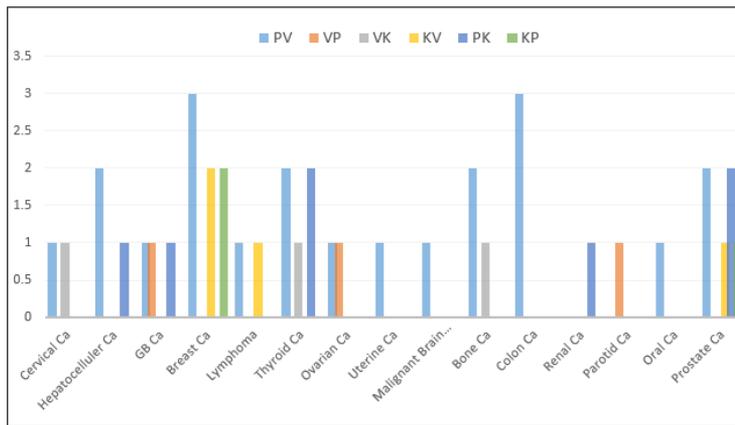
(Fig: 01- Prevalence of Arbuda according to Deha Prakriti gender)

Type of Arbuda (according to Dosha)	Number of patients	Percentage
Vataja	12	30%
Pittaja	07	17.5%
Kaphaja	06	15%
Rakthaja	04	10%
Mansaja	09	22.5%
Medoja	02	5%

(Table: 01- Type of Arbuda (according to Dosha)



(Fig: 02 - Relationship between Deha Prakriti and type of Arbuda)



(Fig: 03 - Relationship between Deha Prakriti and Site of the Cancer)

Age Group (according to Cha.sam)		Number of patients	Percentage
Bala (upto 30)	Aparipakwa (0-16)	-	-
	Viwardhamana (16-30)	01	2.5%
Madyama (30-60)		16	40%
Jeerna (60-100)		23	57.5%

(Table: 02 - Prevalence of Arbuda according to age)

(Table: 03 - Prevalence of Arbuda according to gender)

Gender	Number of Patients
Male	19
Female	21

DISCUSSION

Cancer is a dreadful disease. That can have in the lifeway. Most of the patients in this study were diagnosed and treated by allopathic medical knowledge. Some were directly approved to the Ayurveda field.

Data was collected from 40 patients, there who visited the cancer clinic, BMARI. Out of these patients most of them belong to Pitta - Vata Prakriti. It was 53% in number. This type of Prakriti has a more tendency for cancers. 18% of patients were Pitta - Kapha prakriti, 10% were Kapha - Vata Prakriti, 7.5% were Vata - Pitta Prakriti, 7.5% were Vata-Kapha Prakriti and 5% were Kapha - Pitta respectively. Among those patients, Kevala or Thridoshaja prakriti patients were not presented.

Relationship between Deha Prakriti and type of Arbuda, and Relationship between Deha Prakriti and Site of the Cancer has been analyzed. According to the results, Pitta-Vata Deha prakriti become more prominent among Vataja, Pittaja, Kaphaja, Raktaja and Mamsaja. Most of the Patients with Colorectal Carcinoma, Breast Carcinoma, and Hepatocellular Carcinoma, Thyroid Carcinoma, and Bone Carcinoma, Uterine carcinoma, Prostate carcinoma, malignant brain tumor and Oral Carcinoma shows Pitta-Vata prakriti most significantly. Other than main findings, some other important facts were noticed. Out of them, age of the patient gender, type of the Arbuda were remarkable points throughout the study.

According to the age classification of Charaka Acharya; 57.5% patients were in the 'Jeerana avadi' (60-100 years) 40% patients were in 'Madhyama avadhi' (30-

60 years) 2.5% patients were in 'Vivardhamana avadhi' (16 - 30 years) of 'Bala avadhi'. According to the gender, there were 53% of female and 47% of male patients. When consider the type of Arbuda it was categorized according to Doshic condition and the site of 'Arbuda'. According to the Doshic condition, mention by Susruta acharya most of the Arbuda were vataja (27%). 18% were Kaphaja Arbuda, 15% were Medaja, Mamsaja, Pittaja and 10% were Raktaja respectively.

CONCLUSION

Patients who have Pitta - VataPrakriti (53%) appeared as they have higher tendency to develop cancer. Vataja Arbuda is most Significant type of Arbuda. Concept of Deha Prakriti in Ayurveda can be useful for early detection of disease and assists to uncover hidden facts. Therefore, it seems that the line of treatment for different patients should be varying according to their constitution. This concept can be useful for Prevention and cure of Non communicable diseases like Arbuda.

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ROLE OF RAKTHAMOKSHANA BY JALAUKAVACHARANA IN THE MANAGEMENT OF DRUSHTA VRANA

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ABSTRACT

Even though the leech is a disgusting animal to some people, it is one of the most helpful creature for Ayurveda treatment procedure, specially under Rakthamokshana. Leech therapy has done miracles in management of drusta vrana. Raktamokshana, or bloodletting, it is an important part of the clinical therapeutic use of Panchakarma in the management of several important disease conditions, including drushta vrana (chronic wound). When over indulgence of toxicity of rakta and pitta dosha vitiation has occurred, it is difficult in cure by herbs or any other procedure and then Raktamokshana comes to rescue. It is an effective blood purification therapy, in which carefully controlled removal of small quantities of impure blood is conducted to neutralize accumulated toxins. Rakthamokshana is generally of two types, Shastra visravana - use of sharp instruments for Rakthamokshana, usually metallic instruments are used to carry out this process. It is further classified into two more categories. Prachchana which means letting the blood pass through several incisions and Siravyadha, which is also known as the venipuncture. Anushastra visravana no instrument is used for Rakthamokshana, It is further classified into three more categories such as Jalaukavacharana (Leech therapy)- which means, applying leeches, this is mainly done for the patients with pittha dosha disorders, Alabu (Pitcher gourd) Which means creating vacuum and extracting blood through the vacuum using a vegetable, which may be bottle guard or Alabu. This is mainly done for treating kapha dosha disorders, and Shrungavacharana (Cow's horn) which means applying the cow's horns. This is mainly done for treating vata dosha disorders. Dushta vrana is the most common encountered problem faced by a medical practitioner or in surgical practice. Even though healing of Vrana is a natural process of the body; the Vrana should be protected from Dosha dushti & from various microorganisms which may hamper the natural course of Wound healing.

Key words: Rakthamokshana, Dushta vrana, Jalaukavacharana (Leech therapy)

**APPLICATION OF SPECIAL AYURVEDIC CONCEPTS IN LIFE STYLE
REGIMENS FOR ENHANCEMENT OF QUALITY OF LIFE TO PREVENT
DISEASES**

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ABSTRACT

Living is not a simple thing. Even though, everyone dreams of living an enjoyable and comfortable healthy life, to reach this goal, people started by inventing various sophisticated, modern equipment and techniques. But nowadays most of them cognizant of that, in a friction of a second, they have to abandon everything behind and go, because of various kinds of accidents, natural disasters and mainly communicable and non-communicable diseases. Now it has come to a point that people has realized living a healthy life is the best way which is explains very well in Ayurveda. Ayurveda emphasized that adhere to Ayurveda Dinacharya and Rathricharya are one of the best methods to enhance the bala/ prana/ ojas/ vyadhishamathva of someone. The process of Vyadhishamathva is the valuable factor ,which prevents the disease or alleviate the severity of a disease. As susrutacharya mentioned ‘ojas’ is the essence of sapta dhatus and responsible for the strength of individual. Therefore it reveals that derangement of ojas, prone to arising of diseases, disability and even death. Prevention of diseases according to the Ayurveda based on the main concepts like Dinacharya, sadvrutta, dharaniya vegas and acara rasayana. The authentic Ayurveda text books and relevant articles are selected as the source materials to fulfill the idea of dissemination and aware of community by using such techniques to uplift the vyadhishamithva of their selves to overcome diseases and attaining hithayu,sukayu and deergayu.

Key words: Vyadhishamithva, Dinacharya, Ayurveda concept

**DOES PREGNANCY INFLUENCE EYE PARAMETERS? ASSESSMENT OF
CHOROIDAL THICKNESS USING EDI-OCT BEFORE AND AFTER LABOUR
DEPENDING ON THE WAY OF DELIVERY METHOD**

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Objectives:

The aim of this study is to assess the choroidal thickness (CT) with use of EDI-OCT in patients before and after delivery depending on the mode of delivery.

Material and methods: The study involved 146 eyes of 73 patients aged 20-34 years, after natural labour (66 eyes) and C-section (80 eyes). Main inclusion criteria: Informed consent to participate in the study, age 18–35 years, single pregnancy, spherical refraction error –4.00 to +4.00 D, no eye pathologies, no surgery and ophthalmic procedures-including refractive surgery, childbirth after 36 weeks of pregnancy, BCVA = 1.0. Patients were examined twice: in 36 WG and on 6th week after the birth. All examinations were carried out between 8:00 am and 10:00 am in order to avoid daily cycle fluctuations. CT measurements were made manually by two independent researchers at: subfoveal and 500 μm , 1000 μm , 1500 μm , 3000 μm temporally and nasally. The student's t-test was made.

Results: In C-section group CT differences before and after delivery were statistically significant in 7/9 of the analysed areas. Mean subfoveal choroidal thickness was 370.86 μm vs 388.71 μm in 36 WG and in 6th week postpartum respectively ($p = 0.0003$). In women after natural labour, differences were statistically significant in 3/9 of the analysed areas. Mean subfoveal choroidal thickness was 303.27 μm vs 308,34 μm in 36 WG and in 6th week postpartum respectively ($p = 0.4800$).

Conclusions: The thickness of the choroid was lower in women in 36 WG in comparison to 6th week after birth. Changes in the thickness of the choroid are particularly noticeable in women after caesarean section.

Key words: pregnancy, caesarean section, natural childbirth, choroid, optical coherence tomography

EVALUATION OF SERUM LEVELS OF VE-CAD, HMGB1, CD44 AND KLK6 AS POTENTIAL BIOMARKERS IDENTIFYING MALIGNANT TRANSFORMATION WITHIN VOCAL FOLD LESIONS

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INTRODUCTION

Biomarkers are useful in evaluating the progress of carcinogenesis, predicting the long-term survival or reoccurrence. In this study the serum levels of following biomarkers were tested:

1. High-mobility group box 1 (HMGB1) protein, that is involved in tumor growth, angiogenesis and metastasis.

2. Kallikrein 6 (KLK-6) that is proposed as biomarkers in human solid tumors, especially high-grade cancers and is related with poor overall survival.

3. Vascular endothelial-cadherin (VE-cad), the most important transmembrane component of endothelial adherens junctions, which also enables cancer cells to form vessel-like networks providing adequate blood supply for tumour growth.

4. Soluble CD44 protein, another cell adhesion molecule, which can promote uncontrolled growth, evasion of apoptosis, angiogenesis, cell motility and invasion.

This set of proteins were never analysed in any study of precancerous vocal fold (VF) lesions or early glottic cancer. The expression of HMGB1 and KLK6 were evaluated previously in advanced laryngeal cancers.

Objection:

The purpose of this study was to compare serum levels of VE-cad, CD44, HMGB1 and KLK6 in patients with vocal fold lesions of different pathological origin. The correlation between levels of these markers, clinicopathological

parameters and their prognostic impact were analyzed.

MATERIALS AND METHODS

The study consisted of 80 patients diagnosed with different stages of VF lesions: non-dysplastic, low grade dysplasia, high grade dysplasia and cancers. Blood samples from each patient were collected before surgical resection. Final diagnosis was confirmed according to histopathological examination. Serum levels of analyzed proteins were measured by enzyme-linked immunosorbent assays (ELISA) with an immunoassay kit for specific antibodies: VE-cad, CD44, HMGB1, KLK6.

RESULTS

The ELISA tests were conducted on 80 blood samples consisted of 39 non-dysplastic, 8 low-grade dysplastic, 6 high-grade dysplastic and 27 invasive cancers. The Kruskal–Wallis one-way analysis of variance revealed no differences in serum levels of biomarkers between different histopathological stages of vocal fold lesions (HMGB1 $p=0.897$, KLK6 $p=0.354$, VE-cad $p=0.1$, CD44 $p=0.433$). There were significant and strong correlations between HMGB1, KLK6 and VE-cad (range from 0.962 to 0.972, p -value for all <0.001), but the biomarkers did not correlate with CD44. Patients with GERD had higher serum levels of KLK6 ($p=0.06$) and lower levels of CD44

($p=0.084$). The level of VE-cad was significantly higher in cases of cancers with GERD symptoms ($p=0.034$).

CONCLUSIONS

The serum expression levels of selected biomarkers are unlikely to be a prognostic

factors for identification of different laryngeal lesions. It seems that the levels of KLK6, CD44 and VE-cad may be influenced by GERD accompanying hypertrophic laryngeal lesions. Further studies concerning identification of serum indicators of laryngeal cancer progression are necessary.

DOES CESAREAN SECTION OR PRETERM DELIVERY INFLUENCE TGF- β 2 LEVEL IN HUMAN COLOSTRUM?

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Human Colostrum (HC) is an incredibly rich source of immune mediators, including TGF- β consisting of 3 isoforms. TGF- β regulates cellular homeostasis and inflammation, can induce or suppress immune responses, limits Th1 reactions, stimulates IgA production. Recent studies show the particular interactions between probiotic bacterial strains and cytokines. Human milk TGF- β 2 decreases apoptosis of intestinal cells and suppresses macrophage cytokine expression. The aim of the study was to determine concentration of TGF- β 2 in HC obtained from mothers who delivered vaginally (DV) or by cesarean section (CS), and to compare concentration of TGF- β 2 in HC in term (TB) and preterm (PB) birth. Concentrations of TGF- β 2 were measured in HC from 299 women, who delivered in the 1-st Department of Obstetrics and Gynaecology, Medical University of Warsaw: 192 (DV), 107 (CS), 251 (TB), and 48 (PB). Colostrum samples were collected within 5 days post-partum. TGF- β 2 levels in HC were measured by ELISA test with the Quantikine ELISA Kit- Human TGF- β 2. Statistical significance between groups was calculated by Student-t test using Statistica 13 software. Levels of TGF- β 2 were significantly higher in the HC after CS than DV (7.294 vs. 4.895 ng/mL, $p=0.0005$). Levels of TGF- β 2 in HC was higher after BP than TB (6.911 vs. 5.531 ng/mL). However this difference is not statistically significant ($p=0.1244$). In our research most of BP (56%) were given via CS.

Data from this study suggest

Cesarean section was associated with increased levels of TGF- β 2 in HC.

The increased levels of TGF- β 2 in HC of women who delivered prematurely requires further research.

Early and exclusive breast-feeding by mothers after cesarean section and premature births with colostrum containing high TGF- β 2 levels may prevent negative impact of pathogens which often colonize gastrointestinal tract and may reduce the risk of chronic diseases in this group of patients.

Keywords: Human colostrum; human milk; nutrition; immune modulators; TGF- β ; cytokines; health outcomes; chronic disease

PREGNANCY AND THE EYE. CHANGES IN MORPHOLOGY OF THE CORNEA AND ANTERIOR CHAMBER OF THE EYE IN PREGNANT WOMAN

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Objectives: The main goal of the study was to determine whether uncomplicated pregnancy and natural labor exert influence on the cornea and the anterior chamber of the eye.

Material and Methods:

The study included 114 eyes of 57 women in age of 21–35 years old. Only patients in the physiological pregnancy and giving natural birth were recruited into study. Prospective observational examination was performed. Patients were diagnosed twice: in 36 HBD and 6 weeks after labor. Using the Scheimpflug camera (Pentacam system) the following parameters were assessed: central corneal thickness (CCT), keratometric parameters: flat (K1) and steep (K2), astigmatism value and axis, anterior chamber depth (ACD), anterior chamber volume (ACV) and anterior chamber angle (ACA). The statistical analysis was carried out in the StatSoft Statistica 13 program.

Results:

CCT value is greater in the third trimester than in 6th week after the labour. ACD and ACA values are higher in 36 HBD than in the post-partum period but the difference is not statistically important ($p > 0.05$). K1, K2, cylindrical refraction error, axis of cylindrical refraction error do not change.

Conclusions:

Authors claim that it is the result from an increase in water retention in the corneal stroma as a response to hormonal changes. The plasticity of the anterior chamber seen before delivery can be a natural adaptive mechanism of the female body, which counteracts the excessive increase in intraocular pressure in the second stage of delivery.

Key words: pregnancy; cornea; anterior chamber of the eye; parturition; keratometry

**“DALAWWA” AND “DEWLUDAYA” AMONG SRI LANKAN
MEMBRANOPHONES**

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ABSTRACT

It is evident in many rock letters, copper papers, pile papers, legendary tales, cave arts and sculptures, carvings, epistolary poems and other proofs that varied drums are used in Sri Lanka from the pre historic ages. Many facts related with Sri Lankan membranophones are inculcated in great Buddhist books such as “Mahavamsa” and other Sinhala literary books. With the birth of the drum, it has used as a ceremonial object in pageant, shaanthikarma (pacifying deeds) and other distinguished functions such as weddings. Later many rhythmical creations opened up to the world by blending the sounds of drums placed in sweet melodious ranges. Gawula which is invented by Kalaashuri Piyasara Shilpadhipathi in the year 2000 and E.D Wimalasena’s pokuru beraya of 1994 ,Vihara beraya of 1998, Thith Beraya of 2006 are also significant. This research introduces Dalawwa and Dewludaya from which Dalawwa is made by Duf beraya and Dawla while Dewludaya is made from Duf beraya and Pahatharata beraya. In addition to that, 12 drills are introduced with each of these newly invented two drums. Dalawwa and Dewludaya could be utilized in distinguished affairs such as shaanthikarma, stage dances, creative dancing events and musical creations. The predominant intention of the two inventions is to add value and new interpretations to the local dancing and music fields as well as foreign dancing and music performing arts.

Keywords: Dalawwa, Dewludaya, Shanthikarma, Drills, Duff

**INFLUENCES HAPPENED TO TRADITIONAL DANCE AND TRADITIONAL
DRUMS CULTURE IN SRI LANKA DUE TO A SRI LANKAN CIVILIZATION
NAMED "JADI" BECAUSE OF THEIR VERY OWN AUTHENTICAL
INHERTANCES OF SPECIAL ARTISTIC STYLES**

**ශ්‍රී ලාංකේය ජන සමාජයෙහි ගාඩ් වංශිකයන්ට සුවිශේෂී කලාංගයන් ඇසුරෙන් දේශීය
නර්තන සහ බෙර වාදන කලාවට සිදු වූ බලපෑම**

රත්වමර සී. එල්. අයි. එස්.

වාද්‍ය සංගීත අධ්‍යයනාංගය, නර්තන හා නාට්‍ය කලා පීඨය, සෞන්දර්ය කලා විශ්ව විද්‍යාලය, ශ්‍රී ලංකාව.

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සංස්කෘතිය යන ජන ප්‍රවාහයන්ට අනන්‍ය වූ ගතික ඇවතුම් පැවතුම් හා බැඳේ. සංස්කෘතිය යන ප්‍රකාශනයේ දී ඊට අදාළ සංස්කෘතිමය ශාඛා, ප්‍රධාන ළඟි ව්‍යවහාරික පුද්ගල කරයි. පර්යේෂණ ක්‍රියාවලියේ දී පවතින සත්‍යයට අභිප්‍රාප්තමය කිරීම තුළ නව දැනුම සම්පාදනයන් ඒ ආශ්‍රේය විෂය ගැටළු සඳහා පිළියම් සෙවීමක් සිදු වෙයි. මානව වර්ගවාදී අධ්‍යයනයේදී සංස්කෘතිය යන පොදු සාධකය ඉතිහාසය ප්‍රමුඛතම සාධකයකි. ඓතිහාසිකව පැවැති නමුත් අද්‍යතනයේ දී විශාලතම උප සංස්කෘතියක් පිළිබඳව දැනුම සංජානනය කිරීමේ අරමුණින් " ගාඩ් වංශයේ නර්තන හා වාදනාංගයන් හි සුවිශේෂීතා " යන මාතෘකානුකූලව ශ්‍රී ලාංකේය ජන සමාජයේ විශේෂ සමාජ කොට්ඨාසයකට ආවේනික, අභාවිත කලාංගයන් පිළිබඳ තොරතුරු අධ්‍යයන කාර්යය සාක්ෂාත් කර ගැනීම උදෙසා විස්තරාත්මක පර්යේෂණ ක්‍රමවේදය භාවිත කරන්නට විය. කාර්මිකරණයත් සමඟ ප්‍රවේණිගත කල ක්‍රමය පෙරදිග සහ බටහිර සමාජයෙන් බැහැරවන්නට වූ නමුත් පරම්පරා ගණනාවක් පුරා ශ්‍රී ලාංකේය ජන සමාජයේ විශේෂ පිරිසක් වශයෙන් " රොඩ් " හෙවත් " ගාඩ් " වංශිකයන් ඔවුන්ටම ආවේණික ජීවන රටාව, ඇවතුම් පැවතුම්, භාෂාව, සිරිත් විරිත් හා වත්පිළිවෙත් ගොඩනගා ගන්නට විය.

උක්ත මාතෘකානුකූලව, බුද්ධ කාලීන සමාජයේ සිට අද්‍යතනය දක්වා ලිඛිත මූලාශ්‍රයන් මඟින් ගාඩ් වංශිකයන්ගේ ඓතිහාසික පසුබිම සහ විකාශනය පිළිබඳව දත්ත සම්පාදනය කරගත හැකිය. විශේෂයෙන්ම මහා පරාක්‍රමබාහු (පැරකුම්) රාජ්‍ය පාලන කාලය හා සබැඳි රත්නවල්ලි ප්‍රබන්ධය මඟින් ශ්‍රී ලාංකේය ජන සමාජයෙහි ගාඩ් වංශය ප්‍රභවය ලබා ජනාවාස පිහිටුවා විකාශනය වී ඇත. සිඟමන් යැදීම තම මූලික ජීවනෝපාය මාර්ගය කරගත් මොවුන්ටම විශේෂිත වූ ඇඳුම් පැළඳුම්, සිරිත් විරිත්, කෙම් විධි, භාෂාව, ආහාරපාන, අභිවාර ගතික වූ උප සංස්කෘතික ලක්ෂණ මොවුන්ගෙන් විද්‍යාමාන වෙයි. පාරම්පරිකව විනෝදාස්වාදය සහ මුදල් ඉපැයීම වැනි වාණිජමය වශයෙන් ඉදිරිපත් කරනු ලබන තැටි කැරකැවීමේ ලක්ෂණ, උඩරට නර්තන සම්ප්‍රදායෙහි භාවිත සිල්ලු රබන් කැරකවීම සහ අන් රබන් වාදනයට පිටු බලයක් වන්නට ඇත. ගාඩ් වංශික කාන්තාවන්ටම ආවේණික වූ නර්තනයක් ලෙස " කඹේ නැටුම " සඳහන් කළ හැකිය. රාජකාරිමය කර්තව්‍යයක් වශයෙන් මෙම නර්තනය දේවාල ආශ්‍රීව විකාශනය වන්නට විය. මෙය නර්තනය හා සම්බන්ධව ඉතිහාසයේ ප්‍රථම කාන්තා නියෝජනය ලෙස ද දැක්විය හැකිය. මෙවුන් අතර ප්‍රචලිත " අත්මානම් කෙළිය " නම් වූ ක්‍රීඩාව සුරඹා වල්ලිය නර්තනය නිර්මාණය වීම සඳහා පදනම් වූ බවට සාධක පවතී. මොවුන් අතර ප්‍රචලිත " රොඩ් බලි " යාතු කර්මය මෙන්ම " රොඩ් රැගේ වශී ගුරුකම් " ආදී අභිවාර විධි සුවිශේෂී වෙයි. ගර්භ සංරක්ෂණ අභිවාර වන කිරි අම්මා දානය මෙන්ම රිද්දියාගයෙහි අන්තර්ගත කුල්ලේ පිදේනිය නම් වූ නර්තනාංගයෙහි ප්‍රභවයට ගාඩ් වංශිකයන්ගේ සමබන්ධතාවයක් පවතියි. නූතන ආර්ථික සමාජ තත්ව යටතේ මෙකී පුද්ගල කොට්ඨාශය ශ්‍රී ලංකාව පුරා විසිරී ජීවිතය සරි කරයි. අද්‍යතනයේදී ඔවුන්ටම ආවේණික වූ සංස්කෘතික අංගයන් පසෙකලා සමාජයේ අන්‍ය පුද්ගලයින් සමඟ සම සමාජ මට්ටමකින් යුතුව ජීවත් වෙයි.

ප්‍රමුඛ පද: රොඩ්, තැටි කැරකවීම, කඹේ නැටුම

THE ART OF DRUMMING IN ANURADHAPURA ERA

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ABSTRACT

Drumming is an anthropological aspect in all cultures in the world and it has been popular in the the developed or undeveloped human societies all over the world. Historical sources emphasize that Sri Lankans had very well developed a specific art of drumming and we find more evidence since Anuradhapura era to Kandy era. As no one has carried out any study on this theme, it is impossible to have a comprehensive knowledge on the art of drumming during the Anuradhapura period. It is believed that drumming was a ritualistic feature of this period and it was used as a communicating aspect in above era. There are many historical sources depicting art of drumming style which was extremely developed. The main objective in this research is to make a critical observation in to the art of drumming that exsisted in the Anuradhapura period. Therefore, this research is processing an historical methodology.

EVOLUTION OF RAGA BHAIRAVI IN RAGA ALAPANA

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ABSTRACT

One of the unique features of Karnataka classical music is manodharma sangita, or improvisation. There are four branches of manodharma sangita namely raga alapana, tana, neraval and Svara of Kalpana, of which raga alapana can be said to be one of the earliest forms of improvisation. Raga are continually evolving and enriched by both compositions as well as manodharma sangita. This paper aims to study the changes that take place in the content of a raga in the improvisatory form raga alapana. The study is qualitative in nature and is based on the analysis of oral recordings of the raga alapana of Bhairavi by S. Musiri Subramaniam's style. The study led to the understanding that subjecting a raga to continuous refinement weeds out phrases that are not considered to be typical phrases of the raga and hence limiting the scope for creativity.

Key Words: Alapana, Manodharma Sangira, Karnataka classical music, Improvisation

INTRODUCTION

Karnataka classical music has given equal or greater importance to Manodharma Sangira along with the rich variety of compositions that enrich the genre. It is Manodharma Sangira that serves as a laboratory to experiment with the content of a raga and it is there that a raga gets refined by all the artistes who handle the raga. This study aims to examine the changes that occur in the content of a raga over the peak times of

karnatic music as seen in the improvisatory form raga alapana. The raga Bhairavi is taken up as a case study and the analysis is based on the alapana renditions of the raga by S. Musiri Subramaniam's spanning different styles

Bhairavi Raga

Bhairavi is one of the oldest raga-s of Karnataka music and is considered to be one of the major raga -s today. A lot of compositions can be found in this raga. The trinity of karnataka music have also handled this raga and show cased the various shades through their compositions.

It is interesting to note that the has a long history of having two dhaivata -s as seen in musicological texts, though it is difficult to say whether the present day suddha and catuhsruti dhaivata can be considered to be the equivalents of the suddha and pancasruti dhhaivata-s mentioned in the laksana grantha-s.

Arohana – Avarohana

Bhairavi is described as a sampurna scale by Ramamarya and later authors. The current scale with the vakra prayoga (SGRGMPDNS) can be traced back to sangraha cudamani (1750- 1800 AD) and Mahabharata cudamani (18th – 19th cent.AD)

The scale of Bhairavi is as follows:

AROGA: S G R G M P D N S

Avaroga: S N D P M G R S

The catuhsruti dhaivata is considered to be the anya svara, thus making Bhairavi a bhasanga raga.

Raga Alapana Of Bhairavi

This study examines the alapana renditions of Bhairavi of S.Musiri Subramaniyam. Only Raga – Tana – Pallavi renditions are considered. Analysis done with respect to the content (Phrases, gamaka -s and other features of the raga) of the raga alapana.

The parameters considered for the purpose of analysis are:

1. Usage of the suddha and the catuhsruti dhaivata
2. Nyasa svara – s used
3. Gamaka – s used
4. Unique phrases observed

ANALYSIS

1. Usage of suddha and catuhsruti dhaivata

The artiste has utilized both the dhaivata – s in the opening phrase

S; g r s N D₂ - n s R; r g m g r S r G; - m p d₁ p m d₁ p m G r S;

It is observed that there is a prolific usage of the catuhsruti dhaivata in the initial stage of the alapana rendition. The artiste has used the catuhsruti dhaivata as a nyasa svara (ending note) for multiple phrases. An example is given below.

p P; d₂ N D₂; (Iyar ,1:26 – 1:30 min.)

There appears to be greater emphasis on the catuhsruti dhaivata in the purvanga (beginning) and the uttaranga (ending) of the alapana as observed between 2:16 – 5:20 min. and 12:56 – 15:42 min.

The middle portion of the alapana places greater emphasis on the suddha dhaivata with very minimal usage of the catuhsruti dhaivata. The renditions between 7:34 – 9:40 min. and 11:33 – 12:39 min. is completely devoid of the catuhsruti dhaivata. The artiste has elaborated around the panchama region

here which provides more scope for a rendition than the catuhsruti dhaivata.

2. Usage of Nyasa svara - s

As mentioned in the previous section, the artiste has used catuhsruti dhaivata as nyasa svara in the first part of the alapana. suddha dhaivata has also been used as a nyasa svara as shown in the phrase below:
D1 D1 D1 P D1 N D1 N D1 (11:41 – 11:51min)

It is interesting to note the usage of the suddha dhaivata in the ascent as well as the descent in the above phrase. The other Nyasa svara – s observed in the rendition are S, M, P, S and R.

3. Usage of Gamaka – s

The kampita, nokku and jaru gamaka -s are observed in the rendition. A profuse usage of the jaru gamaka can be observed throughout, an example is given below:

S; R N S P (2:35 – 2:41min.)

The kampita can be considered to be of two types: the lesser (oscillating from the lower note) and the higher note. (Oscillating from the higher note) Bhairavi usually has the higher kampita applied to the gandhara and the nisada. When it is replaced with the lower kampita or when the notes are sung plainly, a similarity to Kharaharapriya can be observed in certain phrases. An example from the rendition is given below:

N; S; R; G; g; r; s; n D₂ - n s r g m G R N - S, m g g r S: (4:07 – 4:16 min.)

4. Uncommon Phrases

Some interesting phrases not usually occurring in Bhairavi can be observed in the rendition. Below:

G M P D₁ - D₁ p - P M - G R - g M P g m p, d₁ p M - d₁ p m G R (12:11-12:19min.)

FINDINGS

- The handling of the suddha and catuhsruti dhaivata has changed over a period of time. Earlier the higher dhaivata featured more prominently in the alapana, while present day renditions adopt a balanced approach with a slightly higher emphasis on the suddha dhaivata.

- In the earlier renditions of the raga, it is observed that many phrases end on the catuhsruti dhaivata, while in the more recent renditions of the raga, this is not the case.

- There is a connection between the range and the usage of the dhaivata – s. Usually, the suddha dhaivata is emphasized around the pancama region, whereas the catuhsruti dhaivata is emphasized around the tara sadja region. This is observed more or less across all the renditions.

- Earlier, the gandhara and nisada were rendered plainly in many phrases. This resulted in a similarity to another raga -s like Kharaharapriya. Over the years, this approach has slowly faded out with artistes taking care to sing the gandhara and nisada with the kampita gamaka.

- The typical phrases associated with Bhairavi have been constant across renditions. Instances of unique phrasings can be observed in the earlier renditions of the raga.

- In the present day, there is a greater emphasis to avoid the shades of other raga-s.

- While the structure of the raga alapana has not been examined in detail in this study, preliminary observations indicate that the overall development of the raga conforms to certain standards.

CONCLUSION

A raga is refined after being handled by many composers and musicians. It grows from one rendition to another, in the process, it gains uniqueness in the microscopic level through the specific phrases that give it life, paradoxically, it also loses out on uniqueness in the microscopic level. If a raga is subjected to multiple levels of refinement in the raga specific phrases, then phrases which seem to give shade of other raga – s or phrases which can not be considered typical phrases of the raga would be weeded out. If the essence of the raga is limited to only a few phrases, then the scope for creativity is also limited as the development of the raga would only take place with the support of the phrases. A glimpse of this process is observed in this study. Earlier renditions contained many phrases that would not be considered to be part of Bhairavi today, but it was perhaps permissible to have phrases giving shades of Kharaharapriya at certain stages in the raga development. However, in the later stage, it was found that in every stage of the raga development, that typical phrases of the raga dominate. further study with a larger set of data would lead to more insights into the importance of typical phrases and in the raga development.

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A STUDY OF THE POETRY AND ACTORS' STRATEGIES REVEALED BY THE OPPORTUNITY TO BREAK THE ABHORRENT FAMILIAL BINDING OF THE RODDY PEOPLE

රොඩී වික්තියෙන් ප්‍රකට වන කවිතළු රංගක්‍රම පිළිබඳ අධ්‍යයනයක්

සී. ඇම්. ආර්. පී. වන්දසේකර

සහය කවිකාවාරිය

ලලිත කලා අධ්‍යයනාංශය

කැලණිය විශ්වවිද්‍යාලය

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සාරාංශය

අතීතයේ නාට්‍ය හැඳින්වීම උදෙසා නාඩගම්, කවිතළු, කවිරග හා නාට්‍ය යන පර්යාය පද රාශියක් යෙදී ඇත. කවිතළු යන්නෙන් කාව්‍ය නාටක යන්න අර්ථවත් වේ. යම් කථා පුවතක් පද්‍යාවලියකට අනුව රඟ දැක්වීම මෙම කවිතළුවේදී සිදුවේ. සිංහල ජන සමාජයේ අතීතයේ පටන් අණවිත කොඩිවිත යන ගුප්තවිද්‍යා ශාස්ත්‍ර පිළිබඳ දැඩි විශ්වාස පවතිනු දක්නට ඇත. යම් පුද්ගලයෙකු හට අනිටු විපාක ඇති කිරීමේ අරමුණින් සිදු කෙරෙන ගුප්ත විද්‍යා කර්ම කොඩිවිත ලෙස හැඳින්වේ. මෙම කොඩිවිත බන්ධන ඉවත් කිරීමට නම් රොඩී ජනයා සතු නිවකුල මන්ත්‍ර භාවිත කළ යුතු බව මන්ත්‍ර ශාස්ත්‍ර සිදු කරන ඇදුරන්ගේ මතයයි. මෙම කොඩිවිත බන්ධන ඉවත් කිරීමට ප්‍රථම රොඩී වික්තිය නමින් පද්‍යාවලියක් ගායනා කෙරේ. එම පද්‍යාවලියෙන් කියැවෙනුයේ අතීතයේ රොඩී කුලය ඇති වූ ආකාරයයි. මෙම රොඩී වික්තිය පද්‍යාවලියෙන් කවිතළු රංග ක්‍රම ප්‍රකටවේද යන්න මෙම පර්යේෂණයේ ගැටළුව වේ. මෙම පද්‍යාවලිය ගායනා කරමින් ඉදිරිපත් කෙරෙන රංගනයන්හි කවිතළු රංග ආකෘතික ලක්ෂණ අන්තර්ගතව පවතී ද යන්න හඳුනා ගැනීම මෙම පර්යේෂණයේ අරමුණයි. මෙය දේශීය සංස්කෘතික ලක්ෂණ ප්‍රකට කෙරෙන මානවවංශ විධි විවරණයක් වන හෙයින් දත්ත විශ්ලේෂණය ගුණාත්මක පර්යේෂණ විධික්‍රමය යටතේ සිදුකරන ලද අතර උද්ගාමී තර්කන ඔස්සේ නිගමනයන්ට එළඹීණි. මෙම පර්යේෂණය සඳහා දත්ත රැස් කිරීමේ දී ප්‍රාථමික සාහිත්‍ය මූලාශ්‍රය භාවිත කරන ලදී. එහි දී ශාල්ලේ මනෝච්ඡේද ඒකනායක මහතා සතු රොඩී වික්තිය පද්‍යාවලිය ද, ඇහැළියගොඩ තේමිස් මහතා සතු රොඩී මාලය පද්‍යාවලිය ද අධ්‍යයනය කරන ලදී. මීට අමතරව පාරම්පරිකව නිවකුල බන්ධන කැපීම් සිදුකරනු ලබන පුද්ගලයින් සමග කරන ලද සම්මුඛ සාකච්ඡා මගින් හා ශාන්තිකර්ම නිරීක්ෂණ මගින් ද දත්ත රැස් කරගන්නා ලදී. ද්විතීක සාහිත්‍ය මූලාශ්‍රය යටතේ පොත්පත්, සඟරා අදියෙන් ද දත්ත රැස් කරගන්නා ලදී. මෙසේ රැස්කර ගන්නා ලද දත්ත විශ්ලේෂණයේ දී කවිතළු රංග සම්ප්‍රදායේ ඇතුළත් රංග ආකෘතික ලක්ෂණ වන ඉෂ්ඨ දේවතා නමස්කාරය, පොතේගුරු, අත්වැල් ගායන, ගායන වෘත්ත, වාදන වෘත්තය, රංග භූමිය ඉදිකිරීම, වාචික අභිනය, ආහාරය අභිනය, සාත්වික අභිනය යන රංග ආකෘතික ලක්ෂණ මෙම රොඩී වික්තිය නම් රංගනය රඟ දැක්වීමේදී ඉදිරිපත් වන බව දක්නට ලැබුණි. එම කරුණු අනුව මෙම රොඩී වික්තිය යනු කවිතළු රංග ක්‍රමයක් බව මෙහිදී නිගමනය කළ හැකි වේ.

මූලාශ්‍ර පද - රොඩී, කවිතළු , ජනයා, ආකෘතිය, අභිනය

1. හැඳින්වීම

අතීතයේ පටන් ලක්දිව දියුණු රංග සම්ප්‍රදායන් පැවති බවට මූලාශ්‍රය අධ්‍යයනයේ දී භාරතුරු ලැබේ. මේ අතර කවිතළු රංග සම්ප්‍රදාය ද අතීතයේ ලක්දිව ප්‍රචලිතව පැවති ඇත. කවිතළු යනු කාව්‍ය මූලික කර ඉදිරිපත් කෙරෙන නාව්‍යයකි. පැරණි නාව්‍ය පිටපත් හා ශාන්තිකර්ම පිටපත් නිරීක්ෂණයේදී මෙම රංග සම්ප්‍රදාය ලක්දිව ඉතා ප්‍රචලිත ව පැවත ඇති බව දක්නට ලැබේ. ලක්දිව පවතින බොහෝ ශාන්තිකර්මයන්හි කරා පුවත් ඉදිරිපත් වනු දක්නට ඇත. එම කරා පුවත් අවසානයේ ශුච්භ විද්‍යාවට අයත් මන්ත්‍ර ශාස්ත්‍ර කටයුතු සම්බන්ධ වනු දක්නට ලැබේ. අප මෙම අධ්‍යයනයේ දී අතීතයේ රොඩී ජනයා සතුව පැවති නිවකුල බන්ධන කැපීමේ යාග හෝම සමඟ කවිතළු රංග ක්‍රම සම්බන්ධ වූ ආකාරය ගවේෂණය කෙරේ. සිංහල සමාජයේ පැවති විවිධත්ව කුලයක් ලෙස මෙම රොඩී කුලය දැක්විය හැකිය. ඔවුන්ගේ කුල වෘත්ති අතරට සිඟා කෑම, කොසු ඉදළ නිපදවීම, කොණ්ඩා හවරි තැනීම, යන්ත්‍ර මන්ත්‍ර ශුරුකම් ද ඇතුළත් විය.¹ මෙම රොඩී කුලය සතුව ඉතා ප්‍රබල යන්ත්‍ර මන්ත්‍ර ක්‍රම පැවති ඇත.² යම් පුද්ගලයෙකුගේ දියුණුව සුභ සිද්ධිය අවහිර කිරීම උදෙසා සිදු කෙරෙන අභිචාර ශුච්භ විද්‍යාවේ හැඳින්වෙනුයේ කොඩිවිත ලෙසය. යම් පුද්ගලයෙකු හට කොඩිවිතයක් සිදු කිරීමෙන් එම පුද්ගලයාගේ දේපල, ජීවිත පවා අහිමි වන බව සමාජ මතයයි. එම කොඩිවිත බන්ධන ඉවත් කළ හැක්කේ රොඩී ජනයා සතු නිව කුල මන්ත්‍ර වලින් පමණක් බව ශුච්භ විද්‍යා ශාස්ත්‍ර පවත්වන ඇදුරන්ගේ මතයයි.³ යම් පුද්ගලයෙකු හට සිදු කළ කොඩිවිතයක් ඉවත් කිරීම උදෙසා යාගහෝමයක් පැවැත්විය යුතුය. එම යාගයේ වාරිත්‍ර රාශියක් දක්නට ඇත. දේව ආරාධනා කිරීම, මල් යහන් නැටීම, යහන් දැක්ම, දොළඟ පාලිය නැටීම, යකුන්ට අඩ හැසීම, යකුන්ට දොළ කැප කිරීම, අට කොණ දැවීම එම වාරිත්‍ර වේ. මෙම වාරිත්‍ර අවසානයේ රොඩී වින්තිය නම් වූ පද්‍යාවලියක් ගායනා කෙරෙන අතර එමගින් කියැවෙනුයේ රොඩී කුලයේ ආරම්භය හා එම කුලයේ විස්තරයයි. එම පද්‍යාවලිය ගායනයේදී එක් නර්තන ශිල්පියෙකු රොඩී පුද්ගලයෙකු වෙත සමාරෝපණය වී රංගනයේ යෙදෙනු දක්නට ඇත. එම පද්‍යාවලිය අවසානයේ මන්ත්‍ර ජප කරමින් තීන්දු සතක් කපන අතර අවසානයේ ගෙරි ඔලුවේ තීන්දුව ලෙස මියගිය ගවයෙකුගේ හිසකට මන්ත්‍ර ජපකර එය කපනු දක්නට ඇත. එම තීන්දුව කැපීමෙන් පසු කොඩිවිත බන්ධනය කැපී යන බව සමාජ විශ්වාසයයි. මෙම තීන්දු සත කැපීමට ප්‍රථම එක් රංගන ශිල්පියෙකු විසින් ඉදිරිපත් කෙරෙන රොඩී වින්තිය නම් රංගනය මගින් කවිතළු රංග සම්ප්‍රදාය ප්‍රකට වේ ද යන්න මෙම පර්යේෂණයේ ගැටලුව වේ. රොඩී වින්තිය නම් රංගනයෙහි කවිතළු රංග ආකෘතිය ලක්ෂණ අන්තර්ගත වේ ද නොවේ ද යන්න නිසි අයුරින් හඳුනාගෙන ලක්දිව පැවති පැරණි රංග ක්‍රම පිළිබඳ අධ්‍යයනයක් කර නව දැනුමක් රංගන ක්ෂේත්‍රයට ලබා දීම මෙම පර්යේෂණයේ අරමුණයි.

2. පර්යේෂණ ක්‍රමවේදය

මෙම පර්යේෂණය දේශීය සංස්කෘතික ලක්ෂණ ප්‍රකට කෙරෙන මානවවංශ විධි විචරණයක් වන හෙයින් දත්ත විශ්ලේෂණය ශුණාත්මක පර්යේෂණ විධික්‍රමය යටතේ සිදු කරන ලද අතර උද්ගාමි

කර්තන ඔස්සේ නිගමනයන්ට එළඹේ. මෙම පර්යේෂණය උදෙසා දත්ත රැස්කිරීමේ දී ප්‍රධාන ලෙස සාහිත්‍ය මූලාශ්‍රය භාවිත කරන ලදී. එහි දී සාහිත්‍ය මූලාශ්‍රය යටතේ ප්‍රාථමික මූලාශ්‍රය අධ්‍යයනය කරන ලදී. ශාල්ලේ පදිංචි මනෝච්ඡි මහතා සතු රොඩ් වික්තිය නම් පද්‍ය පනහකින් යුතු පිටපත ද, ඇහැළියගොඩ පදිංචි තේමිස් මහතා සතු රොඩ් මාලය නම් පද්‍ය තිස් දෙකකින් යුතු පිටපත ද අධ්‍යයනය කරන ලදී. මීට අමතරව ශාල්ල, මාතර, ඇහැළිගොඩ, රත්නපුර හා බලන්නගොඩ යන ප්‍රදේශයන්හි වෙසෙන යන්ත්‍ර මන්ත්‍ර වැනි ශුච්භ විද්‍යා සිදු කරනු ලබන පුද්ගලයින් සමඟ පැවති සාජු සම්මුඛ සාකච්ඡා මගින් ද දත්ත ලබාගත්තේ ය. මෙම පර්යේෂණ කාර්යය සඳහා අප නිරීක්ෂණ මගින් ද දත්ත රැස් කළෙමු. ශාල්ලේ බුස්ස, මාතර වැලිගම, කුරුවිට පහත ගම, පානදුර කෙසෙල් වත්තේ පැවති නිවකුල බන්ධන කැපීමේ යාග නිරීක්ෂණ මගින් ද දත්ත රැස්කර ගන්නා ලදී.

3. ප්‍රතිඵල

රොඩ් මාලය නම් වූ පද්‍යාවලියේ අන්තර්ගත පද්‍ය මගින් අතීතයේ රොඩ් කුලය ඇති වූ ආකාරය, අතීතයේ ලක්දිව පැවති රාජකාරි ක්‍රමය යටතේ ඔවුන්ට පැවරී තිබූ රාජකාරි ක්‍රම කවරේ ද යන්න විස්තර වනු දක්නට ලැබුණි. එම විස්තර ඉදිරිපත් කිරීමේදී ශාන්තිකර්මය සඳහා සහභාගි වන එක් කර්තන ශිල්පියෙක් අතීතයේ විසූ රොඩ් මිනිසෙකු මෙන් ආහාරය අහිතයෙන් සමාරෝපණය වී වාචික හා සාත්වික අහිතයෙන් එම රංගන ඉදිරිපත් කරනු දක්නට ලැබුණි.

4. සාකච්ඡාව

මෙම රොඩ් වික්තිය නම් පද්‍යාවලිය විමර්ශනයේදී එම පද්‍යාවලිය මගින් කවිතළු රංග සම්ප්‍රදායට අයත් ආකෘතිය ලක්ෂණ ප්‍රකට වනු දක්නට ලැබුණි. කවිතළු රංග සම්ප්‍රදායේ අන්තර්ගත වන අකෘතික ලක්ෂණ වන ඉෂ්ඨ දේවතා නමස්කාරය, පොතේ ගුරු භූමිකා, අත්වැල් ගායන, වාදන වෘත්තය, රංග භූමිය, සතර අහිතය භාවිතය, සර්ව රාත්‍රිකව පැවැත්වීම යන ලක්ෂණ මෙම රොඩ් වික්තිය නම් රංගනයේ ද අන්තර්ගත වනු දක්නට ලැබුණි. රොඩ් වික්තිය ආරම්භයේම එය කවිතළුවක් බව සඳහන් කරමින් ආරම්භ වනු දක්නට ඇත.

ගාථා ශ්ලෝක සන්න	ද
වස් කවිද සෙත් කවි	ද
රොඩ් වික්තිය පැවති යෙ	ද
කියත් කවිතළුවේ මුල සො	ද ⁴

ඉහත පද්‍යයේ අවසාන පද්‍ය පාදයේ කියත් කවිතළුවේ මුල සොද යනුවෙන් සඳහන් වේ. ඒ අනුව මෙම රොඩ් වික්තිය යනු පද්‍ය මූලික කර ඉදිරිපත් වූ කවිතළු නාටක රංගනයක් බව පැහැදිලි ය. මෙම පද්‍යාවලියේ රොඩ් ජනයාගේ ආහාරය අහිත පිළිබඳව ද විස්තර වනු දක්නට ඇත.

පෙරසිට පැවතෙන පුවත	අසන්නේ
නුලවාලිය යන නමක්	කියන්නේ
කඩ රෙදි වැරහැලි නිතර	අදින්නේ
සැරවැටියක් නිති අතේ	දරන්නේ ⁵

මෙම පද්‍යයේ රොඩ් පුද්ගලයාගේ ස්වරූපය පිළිබඳ සඳහන් වේ. රොඩ් ජනයා යනු අතීතයේ ඉතා අපිරිසිදු වූ වස්ත්‍ර අඳිමින් සිටි පිරිසක් බවත් නිතර සැරවැටියක් අතේ දරා සිටි බවත් ඉහත පද්‍යයේ සඳහන් වේ.

කවිතරුවේ අන්තර්ගත වන ප්‍රධාන ලක්ෂණයක් ලෙස වාදන වෘත්තය දැක්විය හැකිය. වර්තමානයේ රොඩ් වින්තිය රඟ දක්වන අවස්ථාවේ ගායන වාදන වෘත්තයක් දක්නට නොලැබුණ ද රොඩ් වින්තිය පිළිබඳ සඳහන් කරා පුවත විමර්ශනයේදී අතීතයේ මෙම රංගනය උදෙසා වෙන්වූ ගායන වාදන වෘත්තයක් සිටි බව දක්නට ලැබේ.

කවි සි පදන් කියන්නට රුසි	යේ
අත්වැල් අල්ලන්නට අඟනන් සරි	යේ
බෙර ද දවුල් පනා වයමින් සරි	යේ
රංගදෙන් සුලවාලියා ආ සැටි	යේ ⁶

ඉහත පදයේ සඳහන් පරිදි අත්වැල් අල්ලන්නට අඟනන් ද බෙර දවුල් පටනා වයමින් ඒ සඳහා ගායන හා වාදන වෘත්ත ද මෙම රංගන සඳහා භාවිත වූ බව ඉහත පදය අනුව පැහැදිලි වේ.

5. නිගමනය

මෙම සාධක අධ්‍යයනය කිරීමේ දී නිවැරදි බන්ධන කැපීමේ වාරිත සමග බැඳී රොඩ් වින්තිය නම් පද්‍යාවලිය කවිතරුවක් බව නිගමනය කළ හැකිය.

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4. මනෝජී ඒකනායක මහතාගේ රොඩ් වින්තිය පද්‍යාවලිය 1 පදය
5. එම, 11 පදය
6. එම, 6 පදය

A STUDY OF THE COMPREHENSIVE ART OF DAKKY PLAYING IN UVA

උඹේ ව්‍යාප්ත ඩැක්කි වාදන කලාව පිළිබඳ අධ්‍යයනයක්

සී. ඇම්. ආර්. පී එන්ද්‍රජේතර

සහය කච්ඡාචාර්ය

ලලිත කලා අධ්‍යයනාංශය

කැලණිය විශ්වවිද්‍යාලය

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මහනුවර, උතුරු මැද, සබරගමුව, උඹ හා දකුණු යන ප්‍රදේශයන්හි මෙම උඩැක්කි හා ඩැක්කි වාදන කලාව ව්‍යාප්තව ඇත. මෙම වාදන කලාව ආගමික හා ශාන්තිකර්ම අවස්ථාවන්හි භාවිත වේ. මහනුවර, උතුරු මැද, සබරගමු හා දකුණු යන ප්‍රදේශයන්හි ව්‍යාප්ත ඩැක්කි, උඩැක්කි වාදන කලාව පිළිබඳ පර්යේෂණ සිදුව පැවතිය ද උඹේ ව්‍යාප්ත ඩැක්කි වාදන කලාව පිළිබඳ විධිමත් අධ්‍යයනයක් සිදු වී නොමැති බවට තොරතුරු ගවේශණයේ දී අපට දැකගන්නට ලැබුණි. එම හේතුවෙන් අප උඹ ප්‍රදේශයේ ව්‍යාප්ත ඩැක්කි වාදන කලාවේ පවතින සුවිශේෂතා පිළිබඳ මෙම පර්යේෂණයේ දී අප ගවේශණය කිරීමට බලාපොරොත්තු වේ. එහි දී උඹේ ව්‍යාප්තව පවතිනුයේ ඩැක්කි වාදන කලාවක් ද උඩැක්කි වාදන කලාවක් ද යන්න නිශ්චිතව හඳුනා ගැනීමටත්, මෙම වාදන කලාවේ උපක් කතා සාහිත්‍ය පිළිබඳවත්, එහි භාරතීය ආභාසයන් පිළිබඳවත්, උඹේ භාවිත ඩැක්කියේ වාද්‍ය භාණ්ඩයේ ප්‍රමාණයන් පිළිබඳවත්, මෙම වාදන කලාවේ ඇති වාදන ක්‍රම ශිල්පයන්හි සුවිශේෂතා පිළිබඳවත්, තාල පද්ධතිය පිළිබඳවත්, ඊට අමතරව මෙම වාද්‍ය භාණ්ඩය වාදනයට යෙදෙන අවස්ථා පිළිබඳවත් ගවේශණය කෙරේ. මෙම අධ්‍යයන කාර්ය උදෙසා දත්ත රැස් කිරීමේ දී ප්‍රාථමික සාහිත්‍යය මූලාශ්‍රය. සම්මුත පරීක්ෂණ හා නිරීක්ෂණ ක්‍රම මගින් දත්ත රැස් කරගන්නා ලදී. එසේ රැස්කරගත් දත්ත විශ්ලේෂණයේ දී උඹේ ව්‍යාප්තව පවතින මෙම ඩැක්කි වාදන කලාවේ ඊට ආවේණික වූ විශේෂතා පවතින බව දැක ගන්නට ලැබුණි.

ප්‍රමුඛ පද - උඩැක්කිය, ඩැක්කිය, උඹ, වාදනය, සබරගමුව

හැඳින්වීම

ශ්‍රී ලාංකේය හේරි වාදන ඉතිහාසය ප්‍රාග් ඛ්‍යාද්ධ සමයේ පටන් පැවත එන බව ප්‍රාථමික සාහිත්‍ය මූලාශ්‍රය අධ්‍යයනයේ දී දන්නට ඇත. විජය කුමරුට කුමරුණිය හුමු වූ මුල්ම දින රාත්‍රියෙහි සිරසවස්ථුපුරයෙන් හේරි නාද ඇසුන බව මහාවංශයේ සඳහන් වේ. එම සාධක අනුව ප්‍රාග් ඛ්‍යාද්ධ සමයේ පටන් හේරි වාදන සංස්කෘතියක් ලක්දිව පැවති බව පැහැදිලිය. වංසත්තප්පකාසිනියෙහි අතින්යේ ලක්දිව පැවති කුර්ය භාණ්ඩ වර්ගීකරණයන් පිළිබඳ සඳහන් වේ. එහි ආතත විතත කුර්ය භාණ්ඩ ලෙස දක්වා ඇති වර්ගීකරණයට අයත් වාද්‍ය භාණ්ඩ පිළිබඳ මෙසේ සඳහන් වේ. "ආතත විතතං තාම තන්ති බද්ධ පණවා දී" යන පාඨයෙන් කියැවෙන පරිදි ආතත විතත ගණයේ අවනද්ධ භාණ්ඩවල එක් බෙර ඇසක් මත තතක් යොදා තිබෙන අතර අනෙක් පස වාදනය පිණිස භාවිත

කෙරේ. උඩැස්සක මේ සඳහා නිදර්ශන සැපයිය හැකි වාද්‍ය භාණ්ඩයකි. මෙහි වාදනය පිණිස යොදාගනු ලබන්නේ එක් ඇසක් පමණි. අනෙක් ඇස මතුපිට තනක් යොදා තිබෙනු දක්නට ඇත. මෙම වාද්‍ය භාණ්ඩයේ දෙ ඇසෙහි "වලයම්" හෙවත් ගැටි එකිනෙකට සම්බන්ධ කරමින් භාත්පස වරපට යොදා සකසා ගනු ලැබේ. මෙම වාද්‍ය භාණ්ඩ ලක්දිව විවිධ ප්‍රදේශයන්හි භාවිත වනු දක්නට ඇත. උඩරට, පහතරට, සබරගමු ලෙසින් හඳුන්වන ලක්දිව ප්‍රධාන නර්තන සම්ප්‍රදායන්හි ශාන්තිකර්ම අවස්ථා සඳහා හා විවිධ ආගමික උත්සව උදෙසා මෙම උඩැස්ස භාවිත වේ. උඩරට නර්තන සම්ප්‍රදායේ සුවිසි විවරණ, කඩවර කංකාරි වැනි ශාන්තිකර්ම අවස්ථා සඳහා හා උඩරට ප්‍රදේශයේ පැවැත්වෙන පෙරහැර මංගල්ල වාරිත්‍ර උදෙසා ද මෙම උඩැස්ස නම් වූ වාද්‍ය භාණ්ඩය යොදා ගනු දක්නට ඇත. පහතරට නර්තන සම්ප්‍රදායේ කෝල්මුර යාගයේ කෝල්මුර කවි ගායනා උදෙසා මෙම උඩැස්ස භාවිත වේ. සබරගමු නර්තන සම්ප්‍රදායට අයත් පහත් මඩු ශාන්තිකර්මයේ ද මෙම උඩැස්ස වාදනය අවස්ථා දක්නට ඇත. රජරට ප්‍රදේශයන්හි පැවැත්වෙන මුවිටි බිදීමේ මංගල්ලය, හෙළවැලි බලිය නම් අභිචාර විධි උදෙසා ද මෙම උඩැස්ස වාදන අවස්ථා යෙදෙනු දක්නට ඇත. ඒ අනුව උඩැස්ස නම් වූ වාද්‍ය භාණ්ඩය ලක්දිව විවිධ වූ ප්‍රදේශයන්හි භාවිත වන වාද්‍ය භාණ්ඩයක් වශයෙන් දක්නට ලැබේ. මෙම වාද්‍ය භාණ්ඩයේ උපත පිළිබඳ සඳහන් උපන් කතා සාහිත්‍යයක් ඇත. එම උපන් කතා සාහිත්‍ය ප්‍රදේශයෙන් ප්‍රදේශයට වෙනස් වන අයුරු ද දක්නට ලැබේ. කවද මෙම උඩැස්ස වාදන ක්‍රම අතර ද සුවිශේෂතා පවතිනු දක්නට ඇත. එම ලක්ෂණ අධ්‍යයනය කර ඌව ප්‍රදේශයේ ව්‍යාප්ත උඩැස්ස වාදන කලාවේ සුවිශේෂතා හඳුනා ගැනීම මෙම අධ්‍යයනයේ අරමුණයි.

පර්යේෂණ ක්‍රමවේදය

මෙම පර්යේෂණය දේශීය සංස්කෘතික ලක්ෂණ ප්‍රකට කෙරෙන මානව වංශ විධි විවරණයක් වන හෙයින් දත්ත විශ්ලේෂණය ගුණාත්මක පර්යේෂණ විධික්‍රම යටතේ සිදු කරන ලද අතර උද්ගාමී තර්කන ඔස්සේ නිගමනයන්ට එළඹිණි. මෙම පර්යේෂණ උදෙසා ප්‍රාථමික හා ද්විතීක සාහිත්‍ය මූලාශ්‍රය, සම්මුඛ සාකච්ඡා හා නිරීක්ෂණ යන ක්‍රම මගින් දත්ත රැස් කර ගන්නා ලදී. ප්‍රාථමික සාහිත්‍ය මූලාශ්‍රය අධ්‍යයනයේ දී බිබිල මල්ලනැවේ පදිංචි ඩී. ඇම් ජයතිලක මහතා සතු උඩැස්ස උපත නම් වූ පද්‍යාවලිය ද, බිබිල බුටාරාවේ පදිංචි ඒ. පී අභේසිංහ මහතා සතු උඩැස්ස උපත පද්‍යාවලිය ද, බණ්ඩාරවෙල

හල්පේ පදිංචි ස්ටැන්ලි පතිරණ මහතා සතු උඩැස්ස උපත පද්‍යාවලිය ද අධ්‍යයනය කරන ලදී. මීට අමතරව ද්විතීක මූලාශ්‍රය යටතේ පොත් පත් හා ලිපි මගින් ද දත්ත රැස්කර ගත් අතර ඉහත දක්වන ලද පාරම්පරික නර්තන ශිල්පීන් සමඟ සිදු කරන ලද සම්මුඛ සාකච්ඡා මගින් හා ශාන්තිකර්ම නිරීක්ෂණය මගින් ද තොරතුරු රැස් කර ගන්නා ලදී.

ප්‍රතිඵල

ලක්දිව අනෙකුත් ප්‍රදේශයන්හි ව්‍යාප්ත උඩැස්ස වාදන කලාවට අයත් සාහිත්‍ය හා ඌව ප්‍රදේශයේ ව්‍යාප්ත උඩැස්ස වාදන කලාව පිළිබඳ සඳහන් සාහිත්‍යය අධ්‍යයනයේ දී ඌව ප්‍රදේශයේ ව්‍යාප්ත උඩැස්ස වාදනය සම්බන්ධ සාහිත්‍ය අනෙකුත් ප්‍රදේශයන්හි ව්‍යාප්ත සාහිත්‍යයට වඩා වෙනස් වන බව දක්නට ලැබුණි.

සාකච්ඡාව

උඹ ප්‍රදේශයේ ව්‍යාප්ත උඩැක්කි සාහිත්‍යයේ උඩැක්කියේ උපත සිදු වූ ආකාරය පිළිබඳ මෙසේ විස්තර වේ. "බුද්ධ මංගලායයේ දී දෙවියන් විසින් ඉදිරිපත් කරන ලද තෙර්ත අවස්ථා උදෙසා මහා බ්‍රහ්මයා විසින් නර්තනය ද, ඕසේ කීම සරස්වතී දේවිය ද, කාලය කැබීමට දවුල විශ්ණු දෙවියන් ද, ගීතය සඳහා උඩැක්කිය විශ්ණු දෙවියන් ද මැවූ බව" එහි සඳහන් වේ. සබරගමු ප්‍රදේශයේ භාවිත උඩැක්කි උපතේ උඩැක්කියේ උපත සිදු වූ ආකාරය විස්තර වන්නේ මෙලෙසට ය. "භූපාක්ෂි නම් සාම්පූර්ණ විසින් උඩැක්කිය සාදවා දිවකුරු බුදුන් උදෙසා ශබ්ද පූජා උපහාර පැවැත් වූ බව" එහි සඳහන් වේ. මෙම උපත් කතා දෙක පිළිබඳ අධ්‍යයනයේ දී මෙම කතා පුවත් දෙකෙහි සඳහන් කතා පුවත්හි වෙනස් වන බව දක්නට ලැබේ. උඩරට ප්‍රදේශයේ භාවිත උඩැක්කි උපතේ උඩැක්කියේ උපත සිදු වූයේ මහා සම්මත රජුගේ කාල වකවානුවේ බව සඳහන් වේ. මේ අනුව මෙම උපත් කථා සාහිත්‍ය අතර විවිධ පරස්පරතා පවතින බව පැහැදිලි වේ.

උඹේ භාවිත උඩැක්කියේ ප්‍රමාණය පිළිබඳ සඳහන් වනුයේ මෙලෙසය. එහි කඳ දිග ප්‍රමාණය අඟුල් පහක් ලෙස සඳහන් වේ. සබරගමුවේ භාවිත උඩැක්කිය දිග ප්‍රමාණය අඟුල් දෙකක් වශයෙන් සඳහන් වේ. උඩරට ප්‍රදේශයේ එක් වියතක් හා අඟුල් තුනක් දිග ඇති උඩැක්කියේ භාවිත කෙරෙන බව එම උපත් කතා සාහිත්‍යයේ සඳහන් වේ. මේ අනුව ද විවිධ ප්‍රදේශයන්හි භාවිත වන උඩැක්කි මිනුම් ප්‍රමාණය ද විවිධ ලෙස වෙනස් වන බව පැහැදිලිය.

නිගමනය

උඩැක්කි වාදන කලාව නමින් වාදන කලාවක් ලක්දිව ව්‍යාප්තව පැවතිය ද මෙම වාදන කලාවට අයත් සාහිත්‍ය විමර්ශනයේ දී එක් එක් ප්‍රදේශයන්හි එකිනෙකට වෙනස් වූ සාහිත්‍යයක් පැවති බව පැහැදිලි වේ.

INNOVATIVE METHODS OF TEACHING TABLA IN SRI LANKA DURING GLOBAL PANDEMIC & POSSIBLE IMPACT ON THE LEARNING PROCESS

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ABSTRACT

The global pandemic offers a different perspective to pursue the Tabla teaching process at the institutional level in Sri Lanka. The objective of the research is to explore the innovative methods used in the virtual platform and their possible impact on Tabla learning. As the research methodology, we analyzed possible pedagogical resources that could implement the teaching of Tabla in Sri Lanka. The main research question was how we could apply modern tools and associated technology to Tabla's teaching. In addition, how they affect both students and teachers at their core level. The analysis showed that different resources exist for students to participate in online music training. Consequently, the nature of online communication has an impact on the interaction between teacher and learner, particularly in the practical components. As a result, we have identified, difficulties in teaching and evaluating students' progress with technical perturbations of dominant virtual methods. Clarifications and demonstrations take longer in a virtual classroom compared to a normal procedure. We prefer to teach the practical components individually or in small groups through the virtual platform. More educational initiatives are also required for the promotion of online distance learning in Tabla. In the years to follow online technological progress for online instruction might include higher internet speed connections to enhance the accuracy

in lessons. There would be a need for more improved apps for an effective online learning system, and these innovations could have an impact on future learning, teaching, forms, and will diminish the social-psychological gaps that distance learning may cause.

Keywords: Sri Lanka Tabla training, online learning methods, innovations & possible impact.

INTRODUCTION

Tabla training, however, can be examined from different perspectives: the age of people involved, the level of education, the nature of learning (formal, informal), specific fields of music instruction, and mode of instruction. Tabla music training is traditionally noted as students' serious engagement in practical activities such as learning how to play the instrument, performing with classical or semi-classical styles as solo or in groups. The general scope of this research study was to provide an up-to-date and representative view of the different Tabla teaching methods that practice online today and to explore teachers' and learners' attitudes towards them. This would essentially lead to a better understanding and effectiveness of the teaching and learning process in such methods during the pandemic situation. The research questions of the research work were: What type of tools and how

they are offered via online distance learning? And What are the advantages and the disadvantages of online distance learning according to the instructors engaged in such teaching process during this pandemic.

The purpose of the study was not to evaluate the online Tabla teachings of institutes or private classes that have been conducted during this time. The data analysis and results are solely based on the personal views of the participants. The perspectives and focuses on the advantages and disadvantages of Tabla's teaching and learning are based on the opinions and experiences of people involved in current teaching programs.

METHODOLOGY

Although the technology for education is a constantly developing field of research inquiry, distance learning in Tabla training has been inadequately investigated so far. The present study was developed to fill this gap, exploring current distance learning Tabla training sessions in terms of their teaching and learning constraints, efficacy, and accordance with the expectations of both teachers and learners. Therefore, the study consisted of two segments. Segment one involved participants in the role of teachers and aimed to investigate online learning through their perceptions, experiences, and practices. Segment two involved participants in the role of learners and aimed to investigate their learning experience and impressions concerning the online learning classes they attended.

A questionnaire survey was carried out for the needs of the study and two self-completion questionnaires were developed to cover aspects of teachers' and students' perceptions and practices towards Tabla learning. The questionnaires were sent to people involved in Tabla training from private

classes to the institutional level. The study covered seven districts of four provinces and most facts were collected via Google forms. An important limitation that applied to the study was the restricted number of students that have attended an online Tabla training since this is a recent trend in Sri Lankan Tabla education. The questionnaires were divided into two parts: (i) personal information and (ii) thoughts, explanations, remarks related to the application of online Tabla teaching sessions. Questionnaire items of the first part were mostly multiple-choice questions, while the second part included six open-ended questions to allow teachers and learners to elaborate on different issues and experiences related to Tabla learning, such as teaching methods, online equipment, and apps, time scheduling, possible difficulties, personal opinions about the advantages and disadvantages of teaching Tabla via online methods. Follow-up interviews were conducted with ten selected participants, two instructors, and eight students to collect deeper and more informative qualitative data and to clarify issues that arose from the questionnaires. Eight interviews were conducted as zoom sessions and two in person.

DISCUSSION

According to the participants' responses, there are limited routes for them to be involved in online Tabla training. There is an important distinction between other subjects and Tabla, as to the level of practical aspects it includes in terms of interaction and real-time communication between the teacher and the learner. Practical lessons, such as playing compositions, reciting Taal, and Layakarries require continuous interaction for the student to observe and adapt various aspects of Tabla performance. Similarly, specific music methods require different kinds of verbal or musical

conversation between the teacher and the learner via practical exercises, imitation, and improvisation activities. Online Tabla performances are not based on reading material. They include instruction, which relies on the image. The student needs to observe the teacher as for the way he/she must hold a musical instrument, the correct method to produce sound, the finger movement that is required for better understanding.

The teaching and learning process in Sri Lanka Tabla has changed during this time and has seriously affected teachers and students. By analyzing the data that we might understand there are numerous institutes and cultural centers, Kalayathanas temporarily stopped teaching tabla. 15 out of 22 teachers who have contributed to this research platform are unfamiliar with the new methods and do not pursue their teaching. Eighty-five percent of teachers opposed the use of zoom or any other platform to teach Tabla during this season. Meanwhile, few institutes have tried to continue the teaching process using YouTube, zoom, and their online institutional platforms. University of the Visual & Performing Arts is a leading university in teaching Tabla has taken measures to implement their online learning management system to continue programs. Five educators began new YouTube channels to teach Tabla. As a result of this research, there was no newbie started Tabla learner is found in the use of virtual platforms. Thirty-six students take part in private zoom sessions with their instructors. All students participating in online platforms are already trained on the physical platform previously. Ten students were found who changed tutors during this period as a result of the global crisis. The reason the teacher changed is that the previous teacher ceased to teach or could not keep up with modern technology and methods. And the difficulties in repairing instruments equally affected keep the

coherence of learning. The quality and online connections of the week also influenced the effectiveness of teaching. Zoom is an extremely popular option for teaching Tabla during lockdowns. But the problem is that the appropriate sound is not apprehended and so many delays happened during teaching. This aspect is highly affected. It is also challenging to play Tabla in groups in the zoom session and individual lessons are recommended.

CONCLUSIONS

Online Tabla teaching can be considered as an inclusive form of instruction since it offers opportunities to a wide range of the population to be educated. It can be the only option for people who are keen to continue Tabla learning during this global pandemic. It can suit students who are aware of modern online tools and their availability. It offers flexibility. In advance, it aids students to improve their theoretical knowledge. Teachers in Tabla practical sessions are more skeptical since they frequently face practical issues based on technology and technical equipment. Although they face difficulties and online methods create an impact on the quality of teaching few teachers to support online lessons as not having other alternatives due to this global crisis.

It is difficult to estimate the length of the pandemic, even if positive health improvements are implemented. We need new ways to make music education consistent. It is difficult to comment on the principles inferred from the research as the best tools or methods suitable for Tabla teaching during this period. Although it is acceptable to try to stimulate students who had been learning Tabla during a certain period by using platforms like the zoom is achievable. We consider the impact of the loss of momentum from the teaching-learning process on the practical rather

than the theoretical aspects. The difficulty of maintaining regular evaluations that are so vital in higher education curricula is another impact over this period. Limitations and weekly responses from some important resources are the issues that matter most during data collection. Although new communication media have helped to contact some resources much easier and used to speed up the search.

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EVALUATION OF CEYLON PHILATELY DURING THE BRITISH COLONIAL ERA

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ABSTRACT

When Ceylon was a British crown colony, portraits of their monarch were utilized as the icon of Ceylon's postal identity in the stamp's issues. Based on the literature so far, it could be clearly identified that there is a dearth of prior empirical research studies in relation to the Ceylon Philately. The Objective of the research to evaluate the philosophical and aesthetic elements used in the Ceylon postage stamp issues and how these representations were embraced/assimilated. The content analysis methodology is identified as the most logical method for this research study. The evaluation is conducted using two main data collection methods, mainly the authors possess collection of stamps and philatelic materials, and the collected qualitative data through literature research. The outcome of this research will enable the Ceylon colonial stamps to be classified based on their shade assortments, including new valuation formulas tabulated based on key properties of a stamp that override the unsystematic ratings, and the said formulas will be introduced to the Department of Post of Sri Lanka. It is able to reveal the correct printing technique of the Ceylon postage stamps as a result of the evaluation of the historical printing plates recovered by the author. In addition, the above study revealed and claimed that the Department of posts published the counterfeit stamps from Ceylon as counterfeits and forgeries as part of the

publication of "Postage Stamps of Sri Lanka Volume 1".

Keywords: British Colonial, Postal Stamp, Counterfeit

INTRODUCTION

The period from 1857 to 1948 is indispensable for Sri Lanka in the sense of Philately. The question is whether the Ceylon British Colonial period stamps are being assessed? The appropriate response is yes however in partially and it isn't in Ceylon. Apparently, the Ceylon postage stamp territories still have to be compelled to be beneath analysis to discover the varieties and the variant of the Ceylon stamps. This exploration will explore the hidden areas of Ceylon Colonial postage stamps and their uses. "It is much remarkable that stamps have not received much attention on the academic world" (Hoya, 2010, p.4). Raento and Brunn (2008) Evaluated the history of the Finnish postage stamps, using images, themes and colours as resources to trace the country's gradual transition from "east" to "west". In this research study, the author argues that, during the period of 1857 to 1870 Ceylon stamps were published using the Typography printing method and not by the recess printing process.

In this context, the main objectives of this research have been identified as follows:

1. To fabricate new categorization groups for Queen Victoria era stamps

according to the colour varieties and letter type of the stamps.

2. To evaluate the printing process of the stamps issued during the period 1857 to 1870

3. To reveals the counterfeiting techniques that have been used to counterfeit the most expensive Ceylon stamps.

4. To evaluate the aesthetic elements of the Ceylon Revenue and Telegraph stamps and to discover the new stamp varieties.

METHODOLOGY

The research was conducted according to the aim and objectives of the research to discover the aesthetic elements, formulas, stamp varieties and printing techniques related to the study of philately during the British colonial period in Ceylon, as a result of the evaluation of postage stamp images and other philatelic materials. “Content analysis, a method which can be used qualitatively or quantitatively for systematically analyzing written, verbal, or visual documentation, goes back to the 1950s and the study of mass communication” (White & Marsh, 2006,

p.22). The Content analysis is most commonly used in order to analyze the varieties of stamps and other philatelic material that appear in a specific corpus of postage, Revenue and Telegraph stamps or how frequently that occurs. Therefore, the content analysis method is determined to be the most logical method for this research. The data analysis was carried out 15 years of previous studies and in the possession of a collection of Ceylon postage stamps, Revenue stamps and Telegraph stamps with the images collected from various sources and the three recovered historical printing plates discovered from the author's collection belongs to the period from 1859 and 1872.

RESULTS AND DISCUSSION

Vigilant examination of Ceylon’s 1st postal stamp and 6th postal stamps revealed that both editions were in the same format and by appearance both in the same colour. When analysed further, it could find that Ceylon 1st stamp was printed in a blued paper while the 6th stamps have published in four different colour variations on a white paper.



Figure 1: Ceylon 6th postage stamp with its varieties. Images from Ellawela (2017)

The Department of posts (2015) illustrated the Ceylon 6th postage stamp with its varieties as shown in Fig.2, and was unable to identify the varieties of the Ceylon stamp with the correct colour variations compared to Fig. 1.

The entire set of stamps presented in all most the same colour without eliminating the purple brown, Brown, Deep brown and Light brown, further it fails to empathize with the details of the stamp. Close analysis causes the same stamp printed by

changing the colour using the technology without depicting the real stamp.



Figure 2: Ceylon 6th postage stamp with its verities issued in the Postal Department publication. Images from the Department of posts (2015)

The above analysis and discussion were done as a measure in finding various verities of stamps that impacted and some unacceptable data which carried out by the Department of posts (2015). It is much clear that when examining Fig. 1 vs Fig. 2, as per Ellawela (2017), the author has

produced the correct colour variation in his publication.

Further, Eq. [1], Generated to calculate the real value of a perforated used stamp

$$R_{V_{\text{used}}} = H_{p_{\text{used}}} - (D + Z + M + F) \quad [1]$$

Real value of a perforated used stamp = Recorded, highest value of the used stamp - (Deduction based on the perforations + Deduction based on the displacement + Deduction based on the mounting factor + Deduction based on the fading factor)

Pathetically, Sri Lanka Postal Department has not composed a method to evaluate the Ceylon stamps rather than following the Gibbons (2015) valuation. This research study is able to generate equations to valuate the perforated and imperforated stamps.

Investigation of the printing methods of Ceylon postage stamps, utilized during the Queen Victoria era

This research study was able to reveal the printing methods of the Ceylon Queen Victoria stamps, using the discovered printing plates from the author's possess collection of philately materials as depicted in Fig. 3.



Figure 3: Discovered printing plates, from the authors possessed collection

The following CSE11/SG11 stamp images were generated by applying watercolour green to the raised segment of

Plate A and pressing it against the paper, which is used in the Typography printing method



Figure 4: Stamp CSE11/SG11 generated using watercolour green, constructed by the author

Note. CSE11 and SG11 are numbered according to Ellawela (2017) and Gibbons (2015).

The above evidence proves that the Ceylon SG11 stamp belongs to the typography printing method not to the recess method as described in other literature materials.

CONCLUSION

This research study was able to evaluate Queen Victoria, King Edward, King George, and other pictorial stamps and to fabricate new categorization groups for Queen Victoria stamps according to the colour varieties and the typeface of the stamps and to formulate a relationship to represent the value of the stamp in terms of its properties. Relying on the authenticity of discovered printing Plate A, the author argues and reveal that, during the period of 1857 to 1870 Ceylon postage stamps were printed using the Typography printing method rather than the recess printing process. In addition, this research study discovered and ensured that the Department of posts (2015) within

the publication of 'Postage Stamps of Sri Lanka volume 1' has published some of the Ceylon counterfeit stamps as forgeries and fake.

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CREATING A QUALITY TABLA

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Musician

හැඳින්වීම

වර්තමානය වන විට ශ්‍රී ලංකාව තුළ ඉතාමත් ජනප්‍රිය අවනද්ධ භාණ්ඩයකි තබ්ලාව. අවනද්ධ භාණ්ඩ ලෙස හැඳින්වෙන්නේ මැද කුහරයක් සහිත යමකට, එම කුහරයට උඩින් සමත් අතුරා සකස් කරගනු ලබන සංගීත භාණ්ඩවලට ය. ඒ අනුව තබ්ලාව උර්ධ්වකාරයෙන් වයනු ලබන (Kettle Drum) අවනද්ධ භාණ්ඩයකි.

ඉන්දියාවේ මෝගල් රාජ පරම්පරාවේ අවසාන රජු වූ මුහම්මද් ශාහ රංගීලේ (ක්‍රි.ව.1719 - 1848) රජු හේ සමයේ දී නිර්මාණය වී එම යුගයේ ම උස්තාද් සිධාර් බාං මුලින් ම වාදනය කළා යැ යි සැලකෙන තබ්ලාව, එවකට ඉන්දියාවේ අවනද්ධ වාද්‍ය ක්‍ෂේත්‍රයේ දැවැන්තයා වූ පබාවාජය ද අබිභවමින් වර්තමානය වන විට ඉන්දියාවේ ජනප්‍රියත ම අවනද්ධ වාද්‍ය භාණ්ඩය බවට පත් ව ඇත. එමෙන් ම තබ්ලා ශාස්ත්‍රය ශුරු කුල 6 ක් යටතේ පෝෂණය වීම, තබ්ලාව නැමති අවනද්ධ භාණ්ඩය සතු ජනප්‍රියතාව හා සියුම් නාද නිෂ්පත්ති ශුණය මොනවට ප්‍රකට කරයි.

ඉහත ආකාරයෙන් ඉන්දියාව තුළ අති මහත් ජනප්‍රියත්වයක් ලැබූ තබ්ලාව තුර්කි යුගයේ දී ශ්‍රී ලංකාවට පැමිණීම සිදු වේ. තුර්කි කලාව මෙරට ආරම්භ වූ මුල් යුගයේ දී ඒ සඳහා වාදනය සැපයීමට පැමිණියේ ඉන්දීය වාද්‍ය ශිල්පීන් ය. එම ඉන්දීය ශිල්පීන්ගෙන් ලංකාවේ පුද්ගලයින් සංගීතය උගත් හ. මවුන් මාස්ටර්වරු ලෙස හැඳින්වේ. එසේ අවිධිමත් ව තබ්ලා අධ්‍යාපනය ලැබූ මාස්ටර්වරු මෙරට තබ්ලාව ජනප්‍රිය කිරීමෙහි ලා විශාල දායකත්වයක් සැපයූහ (පීරිස්, 2002: 22). එයින් පසුව ඩී. ආර්. පීරිස්, පී. ඩී. තන්දසිරි වැනි සංගීතඥයින් භාරතයට ගොස් තබ්ලා වාදනය විධිමත් ව හදාරා නැවත ශ්‍රී ලංකාවට පැමිණ තබ්ලා ශාස්ත්‍රය ශිෂ්‍යයන්ට ඉගැන්වීම, ශුවන් විදුලි වැඩසටහන් වැනි ක්‍රියාමාර්ග මගින් තබ්ලාව නැමති අවනද්ධ වාද්‍ය භාණ්ඩය මෙරට අති ජනප්‍රියත්වයට පත් කළ හ. අද්‍යතනය වන විට තබ්ලාව ශ්‍රී ලංකාවේ භාවිතා වන සංගීත ක්‍ෂේත්‍රයන් බොහෝවක් (උත්තර භාරතීය සංගීතය, ව්‍යවහාරික සංගීතය) තුළට පිවිස, ඒවා සඳහා නැතිව ම බැරි සංගීත භාණ්ඩයක් බවට පත් ව ඇත. එසේ ම වර්තමානය වන විට දිවයිනේ තත් දෙස තබ්ලා වාදකයන් ද බිහි ව සිටිති.

මෙසේ ශ්‍රී ලංකාව තුළ තබ්ලාව ජනප්‍රිය වීමට සමගාමී ව තබ්ලා නිපදවන හා අළුත්වැඩියා කරන ස්ථාන ද බිහි විය. මාතර හා මන්නේගොඩ යන ප්‍රදේශ ආශ්‍රිතව බිහි වූ තබ්ලා නිෂ්පාදනායතන මේ වන විට බොහෝ දෙනා දන්නා ආයතන ද්වයකි. එම ස්ථාන දෙක පමණක් නො ව තවත් විවිධ ස්ථාන රටේ පැවතිය ද උසස්, ශුණාත්මක ධ්වනියක් උත්පාදනය කිරීමට සමත් තබ්ලාවක් නිපදවා ගැනීමට සුදුසු ස්ථානයක් අප රටේ නොමැත. ඉන්දියාවේ නිෂ්පාදිත ශුණාත්මක තබ්ලාවක් මෙරට තබ්ලා අළුත්වැඩියා කරන්නන් ගෙන් අළුත්වැඩියා කළ ද එය භාරතයේ අළුත්වැඩියා කළ තබ්ලාවකින් මෙන් ප්‍රශස්ත ධ්වනියක් උත්පාදනය නොකරයි. එය වඩාත් හොඳින් පැහැදිලි වන්නේ ශ්‍රී ලංකාවේ නිෂ්පාදනය කරන ලද තබ්ලාවක් හා ඉන්දියාවේ නිෂ්පාදිත තබ්ලාවක් වාදනය කර නාදය සැසඳීමෙනි. මෙම කරුණු මත පදනම් ව ශ්‍රී ලංකාවේ තබ්ලා නිෂ්පාදනය කරන ආයතන තුළ තබ්ලා නිෂ්පාදනය කරන ආකාරය හා ඒවායේ ශුණාත්මක භාවය පිළිබඳ විමසීම මෙම පර්යේෂණය මගින් සිදු කරනු ලබයි.

ගැටළුව

ශ්‍රී ලංකාව තුළ උසස්, ගුණාත්මක ධාවනියක් උත්පාදනය කිරීමට සමත් තබලා නිෂ්පාදනය නොවේ ද යන්න මෙම පර්යේෂණය සඳහා පාදක වූ ගැටළුව යි.

උපහාසනය

තබලා නිෂ්පාදනයෙන් ආර්ථික වාසි ලබාගැනීමට යාම නිසා ගුණාත්මක ධාවනියක් උත්පාදනය කිරීමට සමත් තබලා, ශ්‍රී ලංකාව තුළ නිෂ්පාදනය නොවේ.

මූලාශ්‍රය සහ ක්‍රමවේදය

මෙම පර්යේෂණය සඳහා වඩාත් ම සුදුසු ක්‍රමවේදය වන්නේ ගුණාත්මක පර්යේෂණ ක්‍රමවේදය යි. පුද්ගල හැසිරීම්, ක්‍රියාකාරකම් හා සිතුවිලි පිළිබඳ අධ්‍යයනයට වඩාත් ම සුදුසු ක්‍රමවේදය වන්නේ ගුණාත්මක පර්යේෂණ ක්‍රමවේදය යි. සෞන්දර්යාත්මක විෂයන් පිළිබඳ ව සිදුකරන පර්යේෂණ වල දී ගුණාත්මක පර්යේෂණ ක්‍රමවේදය උපයුක්ත කරගැනීමේ වැදගත්කම 18 වන සියවසේ විසූ එඩ්මන් බර්ක් හා ඩේවිඩ් හියුම් යන දාර්ශනිකයන් විසින් ද පෙන්වා දී ඇත.

මෙම පර්යේෂණය සඳහා දත්ත රැස් කිරීමේ දී ප්‍රාරම්භික මූලාශ්‍රය වශයෙන් ඉන්ට් උපයෝගී කරගනු ලබයි. විෂයානුබද්ධ ප්‍රාරම්භික මූලාශ්‍රය වශයෙන් නාට්‍ය ශාස්ත්‍රය ඉන්රය ප්‍රධාන වේ.

ද්විතීයික මූලාශ්‍රය වශයෙන් පර්යේෂණය සඳහා දත්ත ලබාගත හැකි ඉන්ට්, සඟරා, පුවත්පත් ලිපි, පර්යේෂණ නිබන්ධනා ආදිය දත්ත ලබාගැනීම සඳහා භාවිත කෙරේ.

මෙම පර්යේෂණයේ දී ප්‍රාරම්භික මූලාශ්‍රය හා ද්විතීයික මූලාශ්‍රය මගින් ලබාගත හැක්කේ සීමිත දත්ත ප්‍රමාණයකි. එයට හේතුව වන්නේ පර්යේෂණය සිදු කරනු ලබන විෂය ක්ෂේත්‍රය සම්බන්ධයෙන් ඇති ප්‍රාරම්භික මූලාශ්‍රය හා ද්විතීයික මූලාශ්‍රය අල්ප වීම යි.

විෂයානුබද්ධ කරුණු පිළිබඳ පුළුල් අවබෝධයක් සහිත පුද්ගලයින් සමග කරනු ලබන සම්මුඛ සාකච්ඡා මගින් ලබාගන්නා දත්ත, මෙම පර්යේෂණය සඳහා වඩාත් වැදගත් වේ. ඒ අනුව තබලා නිෂ්පාදනයින්, වාදකයින් හා විෂයානුබද්ධ ශාස්ත්‍රවන්තයින් සමග සම්මුඛ සාකච්ඡා මගින් දත්ත රැස් කිරීම සිදු වේ.

අන්තර්ජාලය පරිශීලනයෙන් පර්යේෂණය සඳහා උපයෝගී වන දත්ත විශාල ප්‍රමාණයක් ලබා ගැනේ. අදාල දත්ත ඇතුළත් විධියෝ පට, හඬ පට, ලිපි හා විවිධ වෙබ් අඩවි මගින් සපයාගන්නා දත්ත මෙම පර්යේෂණයට මහෝපකාරී වේ.

සහභාගිත්ව නිරීක්ෂණය, ගුණාත්මක පර්යේෂණයක දත්ත රැස් කිරීමේ මූලික අංගයකි. ඒ අනුව අදාල සංගීතාංග නිර්මාණ කාර්යයන් සිදු කරන ස්ථානවල සිට සහභාගිත්ව නිරීක්ෂණය මගින් මෙම පර්යේෂණ කාර්යය සඳහා දත්ත සපයාගත හැකි ය.

අරමුණ

ශ්‍රී ලංකාව තුළ කබ්ලා නිෂ්පාදනය හා අළුත්වැඩියා කරන ස්ථාන බොහෝ පැවතිය ද, එම එක දු ස්ථානයකින් වත් ගුණාත්මක කබ්ලාවක් නිපදවාගත නොහැක. නමුත් භාරතය තුළ තත්ත්වය මීට ඉඳුරා ම වෙනස් වේ. එරට සෑම කබ්ලා නිෂ්පාදනායතනයකින් ම පාහේ ගුණාත්මක ධ්වනියකින් යුතු කබ්ලාවක් නිපදවාගත හැක. එසේ භාරතයේ මෙන් ශ්‍රී ලංකාව තුළ උසස්, ගුණාත්මක ධ්වනියකින් සමන්විත කබ්ලා නිෂ්පාදනය නොවන්නේ මන් ද, එසේ නිෂ්පාදනය නොවීමට මෙරට ගැටළු පවතී ද, උසස් ධ්වනියකින් යුතු කබ්ලාවක් නිර්මාණය කරගන්නේ කෙසේ ද යන කරුණු පිළිබඳ සොයා බැලීම මෙම පර්යේෂණයේ අරමුණ වේ.

අධ්‍යයන වැදගත්කම සහ කාලීන අවශ්‍යතාවය

මේ වන විට ශ්‍රී ලංකාවේ බොහෝ සංගීත ක්ෂේත්‍රයන් සඳහා අත්‍යවශ්‍ය සංගීත භාණ්ඩයක් බවට කබ්ලාව පත් ව ඇත. එමෙන් ම මෙරට අධ්‍යාපන ක්ෂේත්‍රය දෙස බැලීමේ දී කබ්ලාව ඒ තුළ ද ප්‍රමුඛ ස්ථානයක් ගෙන ඇති බව පෙනේ. මෙරට අධ්‍යාපනයේ මුල් අවස්ථාව වන පාසල් පද්ධතිය තුළට ද කබ්ලාව පිවිස සිටී. අධ්‍යාපන අමාත්‍යාංශය මගින් වාර්ෂිකව පවත්වන සංගීත තරඟ තුළ කනිෂ්ඨ සිට ජ්‍යෙෂ්ඨ වයස් මට්ටම් දක්වා ම කබ්ලා වාදනය තරඟ ශීර්ෂය කරගනිමින් තරඟ පවත්වනු ලැබේ.

එපමණක් නොව උසස් අධ්‍යාපන ක්ෂේත්‍රයේ ද කබ්ලාවට තම ස්ථානය අහිමි නො වේ. ලංකාවේ විශ්වවිද්‍යාල තුළ කබ්ලා වාදනය විෂය කොට ගෙන උපාධි පිරිනමන අතර, පශ්චාත් උපාධි සඳහා ද විෂයක් ව පවතී.

මෙසේ මුළු රට පුරා අස්සක් මුල්ලක් නැර කබ්ලාව පැතිර ගොස් ඇති නමුත්, එහි මෙම අධ්‍යයනයට පදනම් වූ ගැටළුව පවතී. එම ගැටළුව මගහරවාගන්නා ආකාරය පිළිබඳ සොයා බැලීම හා ගුණාත්මක කබ්ලාවක් මෙරට නිපදවීමට අවශ්‍ය සාධක සොයා බලා, ඒ අනුව ගුණාත්මක කබ්ලාවක් නිෂ්පාදනය කරන්නේ කෙසේ ද යන්න පිළිබඳ දැනුවත් වීම මෙම අධ්‍යයනයේ අධ්‍යයන වැදගත්කම යි.

එමෙන් ම ඉහත සඳහන් ආකාරයට කබ්ලාව වර්තමානයේ ඉතා ජනප්‍රිය වූ නමුත්, ඒ හා සමගාමී ව කබ්ලා නිෂ්පාදනය මෙරට දියුණු නොවීම මෙම අධ්‍යයනයේ කාලීන අවශ්‍යතාවය යි.

අධ්‍යයන සැලැස්ම

මෙම පර්යේෂණය පහත සඳහන් පරිදි ඉදිරිපත් කරනු ලබයි. ප්‍රථමයෙන් මෙම පර්යේෂණයේ මාතෘකාව හඳුන්වාදෙන අතර, එහි දී භාරතයේ සිට ශ්‍රී ලංකාවට කබ්ලාව සංක්‍රමණය වූ ආකාරය පිළිබඳ කෙටි විස්තරයක් හා ශ්‍රී ලංකාවේ කබ්ලා නිෂ්පාදනායතන පිළිබඳ කෙටි හැඳින්වීමක් අන්තර්ගත වේ. පසුව මෙම පර්යේෂණය සඳහා පදනම් වූ ගැටළුව හා උපන්‍යාසය විස්තර කෙරෙන අතර ඉන් පසුව මූලාශ්‍රය සහ ක්‍රමවේදය, අධ්‍යයන වැදගත්කම හා කාලීන අවශ්‍යතාවය සහ අධ්‍යයන සැලැස්ම ඉදිරිපත් කෙරේ.

මෙහි දත්ත විශ්ලේෂණය මගින් ගුණාත්මක කබ්ලාවක් නිර්මාණය කරන ආකාරය, දැනතාවේ හා ඩිෂ්ටාවේ කඳ, පුඩි, ස්‍රාහි, බද්ධි හා සට්ටා යන කොටස් වෙන් වෙන් වශයෙන් සාකච්ඡා කෙරේ.

එයින් පසු ව සමාලෝචනයක් ඉදිරිපත් කරන අතර, ඒවා පාදක කොට ගනිමින් අවසාන නිගමනය ඉදිරිපත් කළු ඇත.

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REED MATS DESIGN AND THE AESTHETICS OF THEIR DECORATIONS – A STUDY BASED ON KATHANKUDI WOMEN ENGAGED IN WEAVING REED MATS

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This Study deals with weaving of reed mats widely used in Batticaloa, their aesthetics, the relationship between the women weavers and aesthetics, issues in the application of handicrafts, sales and marketing and challenges in promoting weavers in the current situation. In addition, the Study explores the need for the continuous production of reed mats and the need for them...

Kathankudy, where reed mat weaving is done as an employment, forms the Study area. 45 families are engaged in weaving reed mats for their livelihood. It is the women who weave mats. Other members of the family provide necessary assistance like seasoning the mats, drying them, etc. Women here have learnt this skill of weaving mats from their mothers and other elderly women and pass this on to other women. Women, who have thus learnt this skill, engage in weaving mats as their livelihood employment.

Mat weaving and sales existed as a full-time employment in the 1990s. At that time reeds were collected in the marshy lands in the neighbourhood. According to these women, the lands adjoining the sea were marshy lands and therefore reed was easily available. However, this has changed now. These marshy lands have been utilized for the purpose of harbour development and therefore obtaining reed has become very difficult. Under these circumstances, the full-time employment of weaving mats has become a part-time

employment. Now, Kathankudy women obtain reed from places like Ondachimadam, Ollikulam, etc. for weaving mats.

Knowledge gained from the environment through what is seen in the environment and what is practised, form the basis of reed mat weaving. Mat designing and mat decoration are created from usage and practice. The study researches on the aesthetics of the structure of mats, decorations on them and also the connection between women's feelings and reed mat weaving,

THEORETICAL BASIS

This Study includes theories and concepts. Based on the concepts of aesthetics of reed mats, the Study is approached through aesthetic theories, post-colonial thoughts and feminist thoughts.

RESEARCH PROBLEM

Local handicraft aesthetics and aesthetic feelings are tiny dots in the vast field of aesthetics. Here, in addition to a description of aesthetics of local handicraft arts, the Study focuses on women's feeling-related aesthetics which is revealed in reed mats.

RESEARCH METHODOLOGY

Primary data: Field-based

Secondary data: Books, video recordings

Third-level data: From websites

Significance of Research

In the past Studies have been conducted on Arts in Batticaloa. Nevertheless a Study on the aesthetics of reed mats is important as reed mats are considered a livelihood feature of women. This Research will be a significant study in the social cultural sector to increase the need for reed mats and promote those who are engaged in this sector.

Research Questions

What is the description of local aesthetics?

What is the relationship between the structure of reed mats, decoration on them and women's feeling?

Is the use of reed mats rare now? If so, what are the reasons?

Research Objectives

To relate aesthetics to social cultural history.

To approach reed mats with a feminine view.

To find the reasons for the decline in the use of reed mats...

To explore how women's imaginary skills are revealed in reed mat weaving.

Limitations of the Research

This study is based only on the reed mat weaving women of New Kathankudy in the Kathankudy area.

Key Words: Aesthetics, Local Knowledge, Women Economic

AN ANALYTICAL STUDY OF CONTEMPORARY FASHION COLOR TRENDS

සමකාලීන විලාසිතා ක්ෂේත්‍රයේ පවතින වර්ණ ප්‍රවණතා පිළිබඳ විශ්ලේෂණාත්මක අධ්‍යයනයක්

ශ්‍රී. නදීෂා දිල්ෂාදී විරිංක (nadeeshadw7@gmail.com)

පශ්චාත් උපාධි අපේක්ෂක, පශ්චාත් උපාධි අධ්‍යයන පීඨය, සෞන්දර්ය කලා විශ්වවිද්‍යාලය

සාරාංශය

විලාසිතාවක වර්ණය යන සාධකය පාරිභෝගික කාප්තියට සැලකිය යුතු බලපෑමක් ඇති කරයි. විලාසිතා පිළිබඳ පුරෝකථනයන් ඉදිරිපත් කිරීම විලාසිතා ක්ෂේත්‍රයේ පවතින ප්‍රධානතම සංසිද්ධියකි. එවැනි පුරෝකථනයන් පිළිබඳ ක්‍රමවත් විශ්ලේෂණයක් තුළින් ඉදිරි වර්ෂවල විලාසිතා ප්‍රවණතා පිළිබඳ පැහැදිලි මෙන්ම උපයෝගීතාවයෙන් ඉහළ වර්ණ ප්‍රවණතා පුරෝකථනයන් ඉදිරිපත් කිරීමට හැකි වේ. පර්යේෂණය 2011 සිට 2020 දක්වා වර්ණ විචල්‍යතා වෙනස්කම් පිළිබඳව සොයා බැලීය. මෙම අධ්‍යයනයේ පර්යේෂණ ගැටළුව වූයේ "විලාසිතා ක්ෂේත්‍රයේ දැනට පවතින වර්ණ ප්‍රවණතා හා ඉදිරි වර්ෂ වලදී ඇති විය හැකි වර්ණ ප්‍රවණතා මොනවාද?" යන ගැටළුවයි. මෙම පර්යේෂණයේ ක්‍රමවේදය ගුණාත්මක හා ප්‍රමාණාත්මක ක්‍රම දෙකම භාවිතා කරන මිශ්‍ර ක්‍රමයකි.

2011 වසරේ සිට 2017 වසර දක්වා වර්ණ මාලාවක් තුළ ප්‍රතිවිරුද්ධ දිස්වීමක් වර්ණ සුලභ නොවීය. උදාසීන, සිසිල් හා මෘදු වර්ණයන් ඇතුළත් වී ඇත. නමුත් 2012 වසරේ වර්ණය වූ වැටුණේ තැඹිලි පැහැය ඉන් ඔබ්බටත් විලාසිතා අතර රැඳී පවතින වූයේ එහි වන උත්කර්ෂවත් ස්වභාවය හේතුවෙන් බව නිගමනය කළ හැකිය. තවත් වැදගත් ලක්ෂණයක් වන්නේ මේ දක්වා සෑම වසරකම වර්ණ අනාවැකි අතර මෘදු නිල් වර්ණය තිබීමයි. මෙහිදී දීප්තිමත් නිල් පැහැයක් ඇතුළත් වීම අනිවාර්ය පැවතිණි. හරිත වර්ණ ඇතුළත් වීමේදී විවිධ තානයන් එහි තුළ වූ අතර ඇතැම් විටෙක දීප්තිමත් වන්නට ඇතැම් විටෙක උදාසීන හරිත වර්ණයක් ද වීම වැදගත් කොට සැලකිය හැකිවේ.

වර්ණ ප්‍රවණතා පුරෝකථන සඳහා සමාජයේ පවතින තත්වයක් හෝ ජනප්‍රිය දෙයක් ඉවහල් වන බව පොදු මතයයි. පවතින covid 19 වසංගත තත්වය හමුවේ ලොව පුරා මුහුණ දී ඇති අර්බුදය හේතුවෙන් ප්‍රවණතා පුරෝකථනයන් වෙනස් වී ඇත. විලාසිතා ප්‍රවණතා භාවිතය හා සංවර්ධනය සඳහා ඇතැම් න්‍යායන් සහ සංකල්ප බලපා ඇති ආකාරයද හඳුනා ගත හැකි විය. ඒවා අතර සිරසාර විලාසිතා පිළිබඳ සංකල්පය, ඉහළට විසරණය වීම පිළිබඳ විලාසිතා න්‍යාය සහ පරිසර හිතකාමීත්වය පිළිබඳ සංකල්පය, වක්‍රීය විලාසිතා සහ මන්දගාමී විලාසිතා ප්‍රමුඛ වේ. ඒ අනුව මානව හා පරිසර හිතකාමී මෘදු හා සිසිල් වර්ණ ප්‍රවණතා අනුමාන කළ හැකිය. සමාජයේ මුල් බැස ඇති පරිසර හිතකාමී හා මානව හිතවාදී ආකල්ප නිසා ස්වාභාවික ප්‍රභවයන් භාවිතයෙන් වර්ණ ගැන්වීමේ ප්‍රවණතා අනුමාන කළ හැකිය. එහිදී හරිත පැහැයන්, අළු පැහැයන්, රෝස පැහැයන්, කහ පැහැයන්, දුඹුරු පැහැයන් සඳහා වැඩි ඉඩක් හිමිවන බව නිගමනය කළ හැකිය.

ක්‍රියා පද :- සමකාලීන විලාසිතා, වර්ණ ප්‍රවණතා, පුරෝකථන, වර්ණ ප්‍රවණතා සටහන්

A STUDY OF DESIGN PRINCIPLES AND ELEMENTS OF BEADS WHICH FIND FROM RAJAGALA HISTORICAL ARCHEOLOGICAL FIELD

රජගල ඓතිහාසික පුරාවිද්‍යා භූමියෙන් හමුවූ පබළු සඳහා යොදා ගෙන ඇති මෝස්තර මූලධර්ම හා මූලිකාංග පිළිබඳ අධ්‍යයනය

ශ්‍රී. ඩී. නදීෂා දිල්ෂාඩ් විරසිංහ (nadeeshadw7@gmail.com) කටිකාවාරිය (ආධුනික), සෞන්දර්ය කලා විශ්වවිද්‍යාලය

සාරාංශය

පුරාතනයේ සිටම ආහරණ නිර්මාණය ශිල්පය ශ්‍රී ලංකාවේ සුප්‍රසිද්ධව පැවැති සංස්කෘතික උරුමයක් ලෙස දැකගත හැකි අතර පරම්පරා ගණනාවකට පෙර ආහරණ නිර්මාණය කර ඇති ආකාරය හා සසඳන කල, නූතනත්වයට අනුබල දෙන පැරණි සම්ප්‍රදායයන් හා මෝස්තර දැකගත හැකිය. එවැනි සම්ප්‍රදායයන් පිළිබඳ සාක්ෂ්‍ය රැසක් පවතින තවමත් විශ්ලේෂණයට භාජනය නොකළ පබළු රැසක් රජගල ඓතිහාසික පුරාවිද්‍යා භූමියෙන් හමුවී ඇත. අනුරාධපුර යුගයට අයත් බවට සැලකෙන සංස්කෘතික උරුමයක් වන මෙම දේශීය පබළු පිළිබඳ සැලසුම්කරණමය දත්ත විශ්ලේෂණයක් සිදු කිරීම, පබළු නිර්මාණ ශිල්පියා විසින් භාවිත සැලසුම්කරණමය සාධක, ශිල්ප ක්‍රම සහ උපක්‍රම අධ්‍යනය කිරීම, වර්තමාන සැලසුම්කරණ ක්ෂේත්‍රය සඳහා අදාළ කර ගත හැකි දේශීය අනන්‍යතාවයකින් යුතු නව සංකල්ප සහ ක්‍රමවේදයන් හඳුනා ගැනීම මෙම අධ්‍යනයෙහි අරමුණු විය.

රජගල පුරාවිද්‍යා කැනීම් ක්ෂේත්‍රය ක්ෂේත්‍ර අධ්‍යනයක් ඔස්සේ තොරතුරු රැස් කරන ලදී. සැලසුම්කරණ මූලිකාංග හා මූලධර්ම පිළිබඳව විමර්ශනයේදී ක්ෂේත්‍ර කිහිපයක් ආවරණය වන පරිදි විශ්ලේෂණය සිදු විය. එනම්, පබළු භාවිතය සහ උපයෝගීතාවය, නිර්මාණ ක්‍රමවේදය හා තාක්ෂණය, අමුද්‍රව්‍ය භාවිතය සහ කලා ශිල්ප යන ක්ෂේත්‍ර ආවරණය වන පරිදි උක්ත විශ්ලේෂණය සිදු විය.

රජගල පුරාවිද්‍යා භූමියේ පබළු මූලික කොටගත් සාක්ෂි සැලසුම්කරණමය ගවේෂණයක් දැකිය නොහැකිය. එබැවින් මෙම පර්යේෂණය අනුරාධපුර යුගයටත් පෙර සමයේ යටව ගිය හෙළ නිර්මාණකරුවාගේ විශිෂ්ඨ නිර්මාණ කුලකයක පුනරාවලෝකනයකි. එසේම දේශීය අනන්‍යතාවයකින් යුතු නව සංකල්ප, ක්‍රමවේදයන් සහ ශිල්පක්‍රම මෙම පර්යේෂණයෙන් හඳුනාගත හැකි විය. රජගල පුරා විද්‍යා ක්ෂේත්‍රයේ ද්‍රව්‍යාත්මක ශේෂයන් ලෙස හමුවන පබළු වල නිර්මිත හැඩ පිළිබඳ විශ්ලේෂණයේදී ඒවා සාමාන්‍ය පරිසරයේ පවතින එල හා ජ්‍යාමිතික හැඩ ආදියට සමාන බවක් දක්වන බව තාර්කිකව නිගමනය කළ හැක. කානීලියන්, අගස්සි, අඹතෙස්ස, සිරුවානා, පැහැදිලි සිරුවානා, රෝසසිරුවානා, දුම්සිරුවානා බෙරිල් ආදී දේශීය හෝ විදේශීය සම්බන්ධතාවයක් ඇති බනිජ හා පාෂාණ ද විදුරු ටෙරාකෝටා වැනි දෑ ද මේ සඳහා අමුද්‍රව්‍ය වී ඇති බව පෙනේ. රජගල පුරාවිද්‍යා ක්ෂේත්‍රයේ හමු වූ පබළු සම්කාලීන අනුරාධපුර යුගයේ පබළු වල හැඩ, වර්ණයන්ට සමාන බව නිගමනය කළ හැකිය. මේවා නිර්මාණය සඳහා යොදා ගැනීමේදී ඒ සඳහා සුවිශේෂ තාක්ෂණික පියවර නිරූපණය කරන නිරූපක මෙහෙයුම් හඳුනාගත හැකි විය.

මූලික පද- පබළු, සැලසුම්කරණය, මෝස්තර මූලිකාංග, මෝස්තර මූලධර්ම, සංස්කෘතික උරුමය

VALLUVAR'S STATEMENT ABOUT VIRTUE

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ABSTRACT

Having written by a single author, Thirukkural reveals a single structural plan. The book emphasis the codes of law that are relevant to every human in the world. This quality in it had made the world population to celebrate it and they profoundly call it as “Ulaga Pothumarai” or the “Universal Scripture” – the book of principles for the entire world. The kural is praised for its universality across the globe. it's known for its universality and secular nature. The ideological implication of Thirukkural is that if a person leads life and earns wealth through righteous means then enjoyment will become imminent, it will certainly lead to enlightenment. It depicts the different interpretations of various scholars across the globe. Scholars compare the codes of virtue, nobility, propriety, just governance, conduct, social obligations, self- control, education and knowledge with other ancient thoughts. Human life is seen as internally and externally dependent. Thirukkural was created to announce how to deal with this human life. Saint valluvar approach to moral doctrine is marked by a very thorough knowledge of human psychology and a desire to help imperfect humanity to achieve the goal of perfection. Valluvar remains a philosopher concerning the day – to – day conduct of a common individual. This paper highlights the importance of virtue. Its further looks at Thirukkural as a detailed and comprehensive book of virtue which guides us, not by laying down the law, but by throwing challenge upon challenge to the conscience of man in the

form of its many profoundly appealing observations.

Key words: Tiruvalluvar, Thirukkural, Virtue

INTRODUCTION

Thirukkural is regarded as one of the most practical and relevant scripture although written over 2000 years ago. It speaks about various aspects of life, prayer, charity, friendship, gratitude, love, education, society and political etc. Thirukkural talks on how a human being should live in personal, professional and social spheres. This quality in it has provoked people of many nations to treasure it by translating it to their native languages. No wonder Thirukkural is regarded as a universal literature and its greatness is celebrated immensely by the learned society.

Thirukkural imparts that human life should not be limited or confined to a small circle; it should expand with greater significance towards building a mightier society based on morality. The qualities that are relevant to daily reverence to men's life are dispersed through all the chapters emphasizing the dos, don't and the consequences of righteous behavior in all walks of life.

In this essay, let us come to know the relevance of virtue in Thirukkural. In the search of morality, humanity has looked to spirituality, religion and philosophy to grasp code to live by. Thirukkural is a timeless phenomenon relevant now. In the same way it was relevant a millennium

ago. The couplets that illustrate morality and philosophy are pertinent to all despite race, religion, richness or region. It was authored by Thiruvalluvar.

Thirukkural

Thirukkural constitutes one of the most important literary works in Tamil. It is generally reckoned that the kural was composed during the sangam period in Tamil (500- 200 BC). It consisting of 1330 couplets or kurals, 1200 words and 42194 letters. Thirukkural is one among 18 books of the Patinenkil kanakku books. Thirukkural has been translated into more than 170 languages and has been cited by many writers. Thirukkural was first published in the year of 1812 by Mr. malaiyaththuvasan mahan, Gnanaprasadam Publication at Tanjavur. In the book of Thiruvalluvar Malai, 53 poets have sung the glory of Thirukkural in 55 songs. Ten scholars have written texts for Thirukkural, of which Parimalajagar's text is the most important.

The couplets are divided into three segments namely,

1. Arrathupaal (Dharama) – which deals with virtue
2. Porutpaal (Artha) - which deals wealth or polity
3. Kaamathupaal (Karma) - which deals with love

Thiruvalluvar

Saint Tiruvalluvar is a peerless poet. He had pronounced lofty ideals for every man at all ages. Thirukkural is a great literary asset left to posterity by the sage. Thiruvalluvar was a great enunciator of morals. He did not talk about spirituality or godly promises. His birth is dated back to a couple of hundred years before the birth of Christ. Mylapore is often considered his birthplace. His parent's name is Aathi, Bahavan. His wife's name is Vasuki. She is daughter of maarkka

sahayar. His other names are Mudhaar paavalalar, Deivappulavar, Maadhaanupangi, Naanmuganaar, Nayanaar, Poyylr Pulavar, Dhevar, Perunavalalar.

Araththu paal

Arathupaal is mentioned about the good habits of human. It has 38 chapters each containing 10 kurals or couplets, making a total of 380 couplets, all dealing with the fundamental virtues of an individual. The first four chapters, known as the introductory chapters, include 40 couplets (Prologue) on The Praise of God, The Blessing of rain, characteristics of a righteous person, and assertion of the strength virtue. The remaining chapters with 340 couplets are addressed to the common man or a householder, which includes 200 couplets on domestic virtue and 140 couplets on higher yet most fundamental Ascetic virtue based on grace, benevolence and compassion. It is exclusively deals with virtues independent of the surroundings. In Araththu paal, valluvar is known to be a philosopher. The virtue of Thiruvalluvar is applicable across times even today. self-discipline and Humanity relevance are seen in Araththupaal. Let us discuss some of the most important virtues of life such as discipline, impartiality, not covering another's wife, self – restraint, Patience, not envying and coveting, not back biting, against vain speaking, veracity, not doing evil, not killing, in Thiruvalluvar's point of view.

FINDINGS

The modern forms of challenges that we encounter are in no way similar to the ones that were faced by the people of ancient days. The challenges, anyone confronts in today's life certainly help to gain skills and knowledge as integral part of self, complementing one's ability to the

existence. Thus, the knowledge and experience gained in our day-to-day life's challenges influence our proactive behavior. This is evident in the quality of decisions we make and actions we take in various circumstances to keep things under control.

1. **Thiruvalluvar on Thinking**

Morality is when a person is free of guilt. On the other hand, a mind which is clean free from impurities is said to be moral. Since the mind is the birthplace of thoughts which eventually transform into deeds it is essential that one should keep away negative thoughts at bay.

Couplet: 34

Spotless be thou in mind! This only merits virtue's name;

All else, mere pomp of idle sound, no real worth can claim

Couplet Explanation: Let him who does virtuous deeds be of spotless mind; to that extent is virtue; all else is vain show

2. **Thiruvalluvar on Communication**

Communication is a vital part of the mankind. We communicate to share feeling, ideas and information. Thiruvalluvar describes the necessity for an effective communication and the things that one can establish by practicing an effective communication method. Its means Utterance of pleasant words, being soft spoken and etc. Thiruvalluvar describes that the world readily accepts men who excel at the art of speaking things in a pleasing manner with the right choice of words.

Couplet 91:

Pleasant words are words with all pervading love that burn;

Words from his guileless mouth who can the very truth discern

Couplet Explanation: Sweet words are those which imbued with love and free

from deceit flow from the mouth of the virtuous

Couplet: 139

It cannot be that they who 'strict decorum's' law fulfil,

E'en in forgetful mood, should utter words of ill

Couplet Explanation: Those who study propriety of conduct will not speak evil, even forgetfully

3. **Thiruvalluvar on Disciplines**

The discipline is also called the key to success. Every impossible task is possible only with discipline. A disciplined life only leads man to the path of success. Every successful person has strict discipline in the past. Success is achieved only by sowing the seeds of discipline. Man's life is inactive without discipline. Discipline is the ability to control emotion and do the right thing at the right time and also removes weaknesses. Discipline is an invaluable heritage of any human being.

Couplet: 35

Tis virtue when, his footsteps sliding not through envy, wrath,

Lust, evil speech-these four, man onwards moves in ordered path

Couplet Explanation: That conduct is virtue which is free from these four things, viz, malice, desire, anger and bitter speech

Couplet 124:

In his station, all unswerving, if man self-subdue,

Greater he than mountain proudly rising to the view

Couplet Explanation: More lofty than a mountain will be the greatness of that man who without swerving from his domestic state, controls himself

Couplet 143:

They're numbered with the dead, e'en
while they live, -how otherwise?

With wife of sure confiding friend who
evil things devise

Couplet Explanation: Certainly, they are no better than dead men who desire evil towards the wife of those who undoubtingly confide in them

4. Thiruvalluvar on Positive Attitudes

The behavior of the people which they assert in the personal and professional environment is influenced by their attitudes. Attitude is an intangible and imaginary concept which drives changes in the behavior of people. A positive attitude will initiate positivity in the nature/behavior of a person which will motivate the person to perform more tasks competently whereas on the other hand negative attitude will initiate negative though in the behavior of the person which will demotivate them leading to decrease in efficiency.

Couplet 118:

To stand, like balance-rod that level
hangs and rightly weighs,

With calm unbiassed equity of soul, is
sages' praise

Couplet Explanation: To incline to neither side, but to rest impartial as the even-fixed scale is the ornament of the wise

Couplet 154:

Seek'st thou honour never tarnished to
retain;

So must thou patience, guarding
evermore, maintain

Couplet Explanation: If you desire that greatness should never leave, you preserve in your conduct the exercise of patience

Couplet 165:

Envy they have within! Enough to seat
their fate!

Though foemen fail, envy can ruin
consummate.

Couplet Explanation: To those who cherish envy that is enough. Though free from enemies that (envy) will bring destruction

CONCLUSIONS

Thirukkural is non- religious, but not atheistic. Even though attempts were made to interpret Thirukkural from various religious perspectives, it basically reflects the essential ethical principles of the secular social environment of the sangam Tamils. It is rightly called "Ulagappothumarai" (Universal book of Principles) as the principles are common for all irrespective of country, time, caste, religion, sex etc.

Thirukkural is a humanistic ethical work. Humanism gives greater importance to human endeavor as opposed to predetermination by the super natural power. As we have observed earlier, Thirukkural is not opposed to the idea of the existence of a super natural power, but he refused to speculate on it. He, instead, focuses on the known human world and tries to prescribe an ethical code to build a harmonious, perhaps, an ideal human society.

Thiruvalluvar was gave lots of meaningful thoughts to us. It's all are very useful thoughts to human life. therefore, in today's world if a person follows the tenets and virtue of Thirukkural, it is sure that he/she can approach life with best knowledge and live at ease.

REFERENCES

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CONTRIBUTION OF SRI LANKAN RESEARCHERS ON DEVELOPMENT OF

TABLEA

**කඩිලා ශාස්ත්‍රය ප්‍රගම්‍යයෙහිලා ශ්‍රී ලාංකේය පර්යේෂකයන්ගේ දායකත්වය
(2010 වසර සිට 2020 දක්වා)**

පමිත් සාලිත්ද තෙන්නකෝන්
බාහිර සහාය වාදක
උත්තර භාරතීය සංගීත අධ්‍යයනාංශය
සෞන්දර්ය කලා විශ්වවිද්‍යාලය

ගංස්ථිප්පනය

කඩිලා ශාස්ත්‍රීය කරුණු හා සම්බන්ධයෙන් ශ්‍රී ලාංකේය පර්යේෂකයන්ගේ දක්ෂ කෙළේ ද යන්න විමසා බැලීම පර්යේෂකයන්ගේ දී වැදගත් විය. පර්යේෂකයන් කඩිලාව හා සම්බන්ධ මෙහෙයවන පර්යේෂකයන්ගේ මෑත කාලීනව වැඩි උනන්දුවක් දක්වා ඇත්තේ කුමන ශාස්ත්‍රීය කරුණු පිළිබඳව ද යන්න විමසා බැලීම පර්යේෂකයන්ගේ අරමුණ විය. එහි දී පර්යේෂකයන්ගේ ගැටළුව වූයේ භාරතීය කඩිලා ශාස්ත්‍රයේ පිළිගත් පොදු කරුණු වලට අභියෝග කිරීමට දේශීය පර්යේෂකයන්ගේ ප්‍රතිචලයන්ට අවස්ථාව ලැබුණේ ද යන්නයි. රජයේ සංගීත කලායතනය ලෙස පිහිට අද සෞන්දර්ය කලා විශ්වවිද්‍යාලය කඩිලාව හා සිදුකරන ශාස්ත්‍රීය පර්යේෂකයන් වලට පදනම් වන මූලික කේන්ද්‍රස්ථානයක් බව පැහැදිලි විය. එහිගත් කඩිලා ශාස්ත්‍රය හා සම්බන්ධ පර්යේෂකයන්ගේ කටයුතු වල ශ්‍රී ලාංකීයයන් නිරත වූ බව දැකිය හැකි විය. 2010 වසර සිට 2020 වසර කාලය මෙම පර්යේෂකයන්ගේ කටයුතු වල වැඩි විමක් ඇති බවත් දක්නට අනුව තහවුරු විය. ඒ අනුව එම පර්යේෂකයන්ගේ වටපරට හා ප්‍රතිචලයන්ගේ වැදගත්කම අධ්‍යයනය කිරීම කඩිලාව ආශ්‍රිත ඔහු පර්යේෂකයන් මෙහෙයවන්නන්ට වැදගත් වන බැවින් මෙම පර්යේෂකයන්ගේ කටයුත්ත සිදු විය. එසේම භාරතීය කඩිලා ශාස්ත්‍රය හා සම්බන්ධ ශ්‍රී ලාංකීයයන් දරණ මතවාද විමසුමකට මෙහිගත් හැකි විම වැදගත්කමකි. මෙම කාල පරිච්ඡේදය තුළ සිදුකරන ලද පර්යේෂකයන් හා ප්‍රතිචල පිළිබඳ ඉදිරිපත් කර ඇති පර්යේෂකයන් පත්‍රිකා, සම්මන්ත්‍රණ, කෘතී හා පරිපාල දක්නට එක්රැස් කිරීමේ ක්‍රමවේදය විය. එහිදී සෞන්දර්ය කලා විශ්වවිද්‍යාලය මූලික කේන්ද්‍රස්ථානයක් බවත් පර්යේෂකයන්ගේ කටයුතු වල නියැලෙන මූලික ආචාර්යවරුන් නිර්දේශන ක්‍රමවේදය පැහැදිලි කොට තහවුරු කළේය. කඩිලාවේ ඉතිහාසය, කඩිලා ශාස්ත්‍රයේ සාහසික වන සංකල්ප, පද වර්ග පිළිබඳ වැඩි වශයෙන් පර්යේෂකයන්ට මූලික වී ඇති බව පැහැදිලි විය. ඒ හැර කඩිලා ශාස්ත්‍රයට අදාල කැපුම් සංකල්ප වශයෙන් කායදා ආනාතී විශේෂ හඳුන්වා දීම ඉන්දීය කඩිලා ශාස්ත්‍රය පර්යේෂකයන් තුළින් ලාංකීයයන් විසින් කැපුම් මගට යොමු කරන බවට ඇති සාක්ෂිය.

මූලික පද - කඩිලා ශාස්ත්‍රය, ශ්‍රී ලාංකේය පර්යේෂකයන්, හට සංකල්ප

හැඳින්වීම

2010 වසරේ සිට 2020 වසර දක්වා කඩිලාව හා එහි ශාස්ත්‍රීය පක්ෂය ගැන මෙහෙයවනු ලැබූ පර්යේෂක අධ්‍යයනය කොට එහි අන්තර්ගත කරුණු, දක්ෂ හා ප්‍රතිචල කඩිලා ශාස්ත්‍රයේ ප්‍රගම්‍යයට ඉටු කරන මෙහෙයවීම් පිළිබඳ ගවේෂණාත්මක කොටසුරු ගෙනහැර දක්වීම අරමුණක් මෙම පර්යේෂකයන් මෙහෙය විය. උත්තර භාරතීය සංගීත ශාස්ත්‍රයේ මූලික අවන්දිට භාස්වයන් ලෙස ගැනෙන කඩිලාව ශ්‍රී ලාංකේය උසස් අධ්‍යාපනය යටතේ උපාධි මට්ටමින් සෞන්දර්ය කලා විශ්වවිද්‍යාලය තුළ ඉගැන්වීමක් ඒ හා සම්බන්ධ පර්යේෂකයන්ගේ කටයුතු සඳහා මූලිකත්වය එහි අධ්‍යයන කාර්යය මගේවල සාමාජිකයන් විසින් ගන්නා බවත් පදනම් කර ගෙන කඩිලා ශාස්ත්‍රයට අදාල ශාස්ත්‍රීය කරුණු ගුණාත්මක පර්යේෂකයන් යටතේ සාහසික වූ අවස්ථා විමසා බැලීමටත් එහි අන්තර්ගතයන් පිළිබඳව අධ්‍යයනයන් කිරීමත් පර්යේෂකයන්ගේ මූලික පරමාර්ථ විය. කඩිලාව සම්බන්ධව වැඩි වශයෙන් පර්යේෂකයන්ට මෙම අවධිය තුළ ලක් වී ඇත්තේ කුමන කරුණු ද යන්න ගුණාත්මක ඇගයීමකට ලක් කෙරේ. ඒ අතර පර්යේෂකයන් ප්‍රතිචල උත්තර භාරතීය කලා ශාස්ත්‍රයේ මූලික මතවාදයන්ට අභියෝග කරන්නන් ද යන්න පර්යේෂකයන්ගේ ගැටළුව විය. එහි දී ශ්‍රී ලාංකේය ගවේෂකයන් විසින් කැපුම් සංකල්ප සිය පර්යේෂකයන් ප්‍රතිචල ඔස්සේ ගෙන එන බව පර්යේෂකයන් දී උපහාසය විය.

ක්‍රමවේදය

දක්ෂ එක්රැස් කර ගැනීමේ දී පර්යේෂකයන්ට අදාල කාල සීමාව තුළ ශ්‍රී ලාංකීය ගවේෂකයන් විසින් කරන ලද පර්යේෂක කෘතී ලේඛණ, සම්මන්ත්‍රණ පත්‍රිකා, පර්යේෂක සංස්ථිප්පන ඇසුරින් කරුණු එක්රැස් කරන ලදී. මුල්කර පර්යේෂකයන්ට අදාල විෂය කරුණු මත පිහිටා ඒවා වෙන්කර ගැනීමක් සිදු විය. කිසියම් එක් විෂය කරුණක් පිළිබඳව එක් පර්යේෂකයකුට වඩා කිහිපදෙනෙකු සාහසික වන අවස්ථා වල ඒවා තුලනාත්මකව විග්‍රහ කිරීමට උත්සහ ගැනීමකි. එසේම එම අදාල විෂය කරුණු පිළිබඳව උත්තර භාරතීය කඩිලා ශාස්ත්‍රයේ ඇති සිද්ධාන්ත කරුණු හා සංසන්දනයක් ද සිදු විය.

ගාභාවිතව

2010 හා 2020 වසර අතර කාල වකවානුව තුළ සාහසිකවට ලක්වූයේ පර්යේෂක අතර කඩිලා ප්‍රබන්ධ කඩිලාවේ ප්‍රභවය කඩිලා විකාශය හා හින්දුස්ථාන කාල පද්ධතියට අදාල කරුණු මූලික වී ඇත. සෞන්දර්ය කලා විශ්වවිද්‍යාලයේ වන්දනාලී අමරකෝන් විල්වල් දයාවංශ, දීක්‍රෂ රංග පෙරේරා හා වානභ පීරිස් යන අය මූලිකව කඩිලා ශාස්ත්‍රයට අදාල පර්යේෂකයන්ගේ කටයුතු වල නිරත වී ඇති බව පැහැදිලි විය. එහි දී දේශීය හා විදේශීය සම්මන්ත්‍රණ පත්‍රිකා ඉදිරිපත් කිරීමට ඇතැම් පර්යේෂකයන් උනන්දු වී ඇති බවත් ඒ අතර සෞන්දර්ය කලා විශ්වවිද්‍යාල ආචාර්යවරුන්ගේ පර්යේෂක කාර්යය කැපී පෙනෙන බවත් කීව පුහුණු. මේ හැරුණ

විට නීතාල් කමිටුවල කඩලා ශාස්ත්‍රයේ උප-ශාස්ත්‍රීය පක්ෂය පිළිබඳ ඉදිරිපත් කර ඇති කරුණු මෙන්ම සෞන්දර්ය කලා විශ්වවිද්‍යාලයේ විද්‍යාර්ථීන් කිහිප දෙනෙකු විසින් සම්මන්ත්‍රණ පත්‍රිකා යටතේ ඉදිරිපත් කර ඇති කරුණු ද වැදගත් වේ.

කඩලා ප්‍රභවය සම්බන්ධව අධ්‍යයනයට ලාංකීය ගවේෂකයන් මුල් වී ඇත. ඒ අතර කඩලාව අමර කුණරු විසින් නිර්මාණය කළේ ය යන මු ලාංකීය මතවාදය පිළිබඳ පර්යේෂණ පත්‍රිකාවක් ඉදිරිපත් වී ඇත. (පෙරේරා, 2013) කඩලාවේ ප්‍රභවයට අදාළ භාරතීය කැටයම් ආශ්‍රිත ඓතිහාසික අධ්‍යයනයක් සිදුවී ඇත (පෙරේරා, 2012 ඒ) කඩලා ප්‍රබන්ධ පිළිබඳව ද මෙම කාල වකවානුවේ දී වැඩි අවධානයක් යොමු වී ඇති අතර කායදා රචනා කිරීමේ සිද්ධාන්ත (අමරකෝන්, 2016) කායදා ප්‍රබන්ධ විස්තාර කරන විධි පිළිබඳ නව සංකල්ප අධ්‍යයනයක් දීක්‍රෂ රංග පෙරේරා ඉදිරිපත් කරයි. (පෙරේරා,2016) එය භාරතීය කඩලා ශාස්ත්‍රයට හඳුන්වා දුන් නව සංකල්පයක් ලෙස කුලපුත්තකට විග්‍රහයේ දී පැහැදිලි විය. නවද ඔහු කායදාවේ මූලික කොටස් දෙකක් පිළිබඳව සාකච්ඡා කරන පර්යේෂණ කටයුත්තකට ද මෙහිදී අවදානය යොමු විය (පෙරේරා, 2015) අනෙකුත් ප්‍රබන්ධ වලට වඩා කායදා ප්‍රබන්ධ පිළිබඳ වැඩි අවදානයක් යොමු ඇති බව ද පැහැදිලිය.

කඩලා ගුරුකුල අධ්‍යයනය පිළිබඳව ද මෙම අවදියේ වැඩි අවදානයක් යොමු වී ඇති අතර එහි දී පස්වැදි උපාධි නිබන්ධන මෙන්ම පර්යේෂණ පත්‍රිකා ද ඉදිරිපත් වී ඇති බව පෙනී ගියේය (පෙරේරා, 2018) කාල ශාස්ත්‍රයේ මූලික සංකල්ප අධ්‍යයනයක් ලෙස සමස්ථානය හා රූපත් කාලය පිළිබඳවද (පෙරේරා 2012, ඩී) නිහාධි නිර්මාණය ද අවදානයට යොමු ඇති බව පෙනී ගියේය (පීරිස්, 2016) කඩලාව මු ලාංකාවේ භාවිතයේ විකාශය පිළිබඳවද මෙම අවදිය තුළ සාකච්ඡා වී ඇති කරුණකි. (පෙරේරා, 2015) එසේම මෙම දශකය තුළ කඩලාවේ ශාස්ත්‍රීය පක්ෂයට අදාළව රචනා වූ කෘති අතර කඩලා වාදන කලාව ප්‍රධාන කැතන් ගනී. (පෙරේරා, 2012 ඩී) නින්ද්‍රස්නාල කාල පද්ධතියට අදාළ කාලයේ දශප්‍රාණ හා එහි භාවිතය පිළිබඳ විග්‍රහයක් 2013 වසරේදී සිදුවී ඇත. (පෙරේරා, 2013) නවද රිද්මය හා කාලය පිළිබඳ වැඩි අවධානයක් මෙම අවදියේ දී ලාංකීය ශිල්පීන් යොමු කර ඇත (පීරිස් 2013)

මීට අමතරව කඩලාවේ සෛද්ධාන්තික කරුණු හා මතවාද විදේශීය වශයෙන් ප්‍රචලිත කිරීමේ දී දීක්‍රෂ රංග පෙරේරා දායකත්වය මෙම අවදියේ දී දරා ඇති බවත් පෙනේ. විශේෂයෙන් රෝමයේ වොෂින්ටන් විශ්වවිද්‍යාල අනුබද්ධිත ශාඛාවේ කඩලාවේ ප්‍රභවය සම්බන්ධව ඉදිරිපත් කර ඇති සම්මන්ත්‍රණ පත්‍රිකාව ඊට නිදසුන්ය. (පෙරේරා 2019) මීට අමතරව මහානාම වික්‍රමසිංහ, රූපත් වික්‍රමරත්න, නීතාල් කමිටුවල ගයානාත් දසනායක, මුයාත් වන්දනේකර වැනි පර්යේෂකයන් මෙම විෂයයට අදාළව පර්යේෂණ කටයුතු වල නිරත වන බව පැහැදිලි වූ කරුණකි.

නිගමන

අන් දශකයකට වඩා මෙම කාල පරිච්ඡේදය තුළ කඩලාව ආශ්‍රිත පර්යේෂණ වැඩි වශයෙන් ප්‍රකාශයට පත් ව ඇති බව තොරතුරු විශ්ලේෂණයේ දී පැහැදිලි වූ කරුණකි. පස්වැදි උපාධි මෙන්ම සම්මන්ත්‍රණ ඔස්සේ එම ප්‍රතිඵල සමාජගත කිරීමට ද උත්සාහ ගෙන ඇත. මෙහිදී දේශීය වශයෙන් පර්යේෂණ සම්මන්ත්‍රණ හා ජ්‍යෙෂ්ඨ වැඩි වශයෙන් මෙම විෂයයන්ට අදාළව ගොඩනැගීම තුළින් පර්යේෂණ වටපිටාවක් ඇති වී තිබීම වැදගත් වේ. එහි දී සෞන්දර්ය විශ්වවිද්‍යාලය හා එහි ආචාර්යවරු මූලිකත්වය ගෙන ඇති නමුත් සෙසු ආයතනවල මෙම විෂයය හා සම්බන්ධව පර්යේෂණ කටයුතු මෙහෙයවා තිබූ අයුරක් දක්නට නොලැබුණි. කඩලාවේ පද ප්‍රබන්ධ ආකෘති පිළිබඳ වැඩි වශයෙන් අවදානය යොමුව ඇති අතර ඉතිහාසය, විකාශය හා ගුරුකුල පිළිබඳවද වැඩි අවධානයක් යොමු ව ඇත. එහෙත් වාදන විධිමත් වැනි විෂය පථයකට පර්යේෂකයන්ගේ වැඩි අවදානයක් යොමුව නැත. මෙම පර්යේෂණ උත්සාර භාරතීය කඩලා ශාස්ත්‍රයේ සංකල්ප නැවුම් මගට යොමු කිරීමට සමත් වී ඇති බව නිගමන කළ හැකිය. කාලය ලාය පිළිබඳ ගොඩනගන කර්තෘනුකූල නිගමන නව පද ආකෘති වැනි කරුණු මු ලාංකීය පර්යේෂකයන් විසින් මුල් වරට සොයාගත් කරුණු බව තහවුරු විය. ඒ අනුව ඇතැම් විට කඩලාවේ ශාස්ත්‍රීය කරුණු වලට අභියෝග කිරීමට පවා ලාංකීය පර්යේෂකයන්ට මෙම අවදිය තුළ හැකි වී ඇති බව පර්යේෂණයෙන් නිගමන කළ හැකිය.

ආශ්‍රිත මූලාශ්‍ර

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- 10.පෙරේරා, ජේ. ඒ. ඩී. ආර්. (2013), "කඩලාවෙහි ප්‍රභවය පිළිබඳ මු ලාංකාවෙහි ප්‍රචලිත මතය විචාරයක්", රාජකීය ආධිපාතික සංගමය 60වන වාර්ෂික පර්යේෂණ සම්මන්ත්‍රණ පත්‍රිකා එකතුව, පිටු. 211.

- 11.පෙරේරා, ජේ. ඒ. ඩී. ආර්. (2015), "කායදා ප්‍රබන්ධයන්ගේ හරි බාලී අංගයන්ගේ භාවිතය පිළිබඳ නව සොන්දර්ශාත්මක ප්‍රවේශයක්", පර්යේෂණ පරිසංවාදය විස්තෘත පත්‍රිකා එකතුව සොන්දර්ශ කලා විශ්වවිද්‍යාලය, පිටු. 104-115.
- 12.පෙරේරා, කොවිකාර ආරච්චිගේ දීනුෂ රංග. (2015), "භාරතීය කඛිලා සරාණා විධිමුඛ හා ශ්‍රී ලාංකේය අද්‍යයනන ව්‍යවහාරය", දර්ශනපති උපාධි නිබන්ධනය සොන්දර්ශ කලා විශ්වවිද්‍යාලය, GS/Mphil/Mu/11/912
- 13.පෙරේරා, ජේ. ඒ. ඩී. ආර්. (2016), "ශාස්ත්‍රීය කඛිලා ප්‍රබන්ධ විස්තාර විධි පිළිබඳ විවරණයක්", සොන්දර්ශ කලා විමර්ශන පළමුවැනි වෙළුම 7වන කලාපය, පිටු. 246-261.
- 14.පෙරේරා, ජේ. ඒ. ඩී. ආර්. (2018), "උත්තර භාරතීය සංගීතය හා බැඳී සමාජ වටිනාකම් ශ්‍රී ලාංකේය ව්‍යවහාරය පිළිබඳ විවරණයක්", රාජකීය ආසියාතික සංගමය 11වන වාර්ෂික පර්යේෂණ සම්මන්ත්‍රණ පත්‍රිකා එකතුව, පිටු. 255-258.
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CAN CHARACTERIZATION BE IDENTIFIED AS TIME TRAVEL?

වර්තන නිරූපණය කාලතරණ ක්‍රියාවලියක් ලෙස හඳුනා ගත හැකිද ?

ආර්.එම්. උෂාන් පෙරේරා.

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සෑම සජීවී හා අජීවී දෙයකට ම අභිතයක් වර්තමානයක් හා අනාගතයක් ඇත. මෙය කාලය සහ අවකාශයේ වෙනස් වීම් අප හඳුනාගනු ලබන ආකාරය යි. අපට අතින් අල්ලා නතර කළ නොහැකි මෙම තත්වයන් මත මිනිසා දෛනික පැවැත්ම තීරණය කරයි. ඒ සියලු ම ජීවිත ව අභිතයක් වර්තමානයක් හා අනාගතයක් නිර්මාණය වෙමින් සහ නිර්මාණය වී තිබෙන හෙයිනි.

අප මේ මොහොතේ සිටිනුයේ වර්තමානයේ ය. එය තත්පරෙන් තත්පරය අනාගතයට ගමන් කරමින් අභිතයට ක්ෂය වන්නේ ය. එහෙත් අපට එක් මොහොතක දී අභිතය ව හෝ අනාගතය ව ගොස් නැවත වර්තමානයේ පැවතී ය හැකි ද ? මෙයට විද්‍යාත්මක කරුණු මත විවිධ නිර්වචන තුළින් පිළිතුර සෙවිය හැකිය. කාලය හා අවකාශය තුළ අභිතයට හෝ අනාගතයට ගමන් කිරීම කාලතරණයක් ලෙස සරල ව හඳුනා ගත හැකිය.

කාල තරණය යනු කාලයේ කිසියම් නිශ්චිත ලක්ෂණ දෙකක් තුළ හෝ අවකාශයේ කිසියම් නිශ්චිත ලක්ෂණ දෙකක් තුළ මනාකල්පිත යන්ත්‍රයක් භාවිතයෙන් සංවරණය කිරීමයි. මෙම සංකල්පය දර්ශන වාදය සහ ප්‍රබන්ධ තුළ සඳහන් සංකල්පීය අදහසකි. නමුත් කාලයේ යම් අභිමත ස්ථානයක් යනු භෞතික විද්‍යාවේ ඉතා සීමිත සීමාවක් තුළ පවතින ක්වන්ටම් යාන්ත්‍ර විද්‍යාවට හා අධිත්ස්වයින්ගේ රෝසන් පාලමට පමණක් සම්බන්ධ වන්නකි. ඇතැම් විට මෙම පටු සීමාව ඉතා පුළුල් වූවක් විය හැකිය. උදාහරණයක් ලෙස අනාගත කාලයට සංවරණය කිරීම (අභිතයට නොවෙයි) හරහා කාලයේ පළල් වීම භෞතික විද්‍යාවේ අත්තුන බව මනාව පිළිබිඹු කරන අතර මිලි තත්පර ගණන් වලින් පමණක් දැනට අපටාකාශගාමීන් විසින් මෙය අත්විඳ ඇත. ඉතා නිරවද්‍ය ඔරලෝසුවක් පෘථිවිය මත ඔරලෝසුවක් සමඟ සංසන්දනය මගින් ඔවුන් මෙය තහවුරු කරගෙන ඇත. වසර ගණනාවක් අනාගත කාලය වෙත සංවරණය සඳහා ආසන්න වශයෙන් ආලෝකයේ වේගයෙන් සංවරණය කළ යුතුය.

එච්. ජී. වේල්ස් මහතා විසින් 1895 දී කාලතරණ සංකල්පයේ පොදු මනාකල්පිතය පිළිබඳව මූලින් ම අදහස් දක්වා තිබේ. නමුත් එඩ්වඩ් ජෙජ් මිචෙල් මහතාගේ පසුපසට යන ඔරලෝසුව (*The Clock That Went Backward*) තුළ මිනිසුන් නිදහසකට කාලය තුළ අභිතයට(පසුපසට) යා හැකි මායා ඔරලෝසුවක් හඳුන්වා දී තිබෙනවා. චාර්ලස් ඩිකන්ස් ගේ නත්තල් ගීතයක් (*A Christmas Carol*) වැනි කතන්දර තුළ තාක්ෂණික විද්‍යාත්මක නොවන කාල තරණයන් අත්හරිනවා වී තිබෙනවා. ජෙෆ්ට්ස්ටන් පෙට්ට්ටන් කතා මූලයන් තුළ, දින ගණනක් පසු පසට යාමේ සංකල්පය හින්දුන්ගේ මහා භාරතය තුළ ඇත. වර්තමානයේ දියුණු භාෂිතය සහ විශ්වය තුළ විද්‍යාඥයන්ගේ අදහසට අනුව, කාල භාරණයේ සහායකව විස්තරාත්මකව විද්‍යා ප්‍රබන්ධ රචකයන්, දර්ශන වාදීන්, සහ භෞතික විද්‍යාඥයන් පැහැදිලි කර තිබෙන නමුත් මෙහි සක්‍රීය අත්දැකීම ලත් අය පිළිබඳව පවතින්නේ නිෂ්චිත නොවන සාක්ෂි කිහිපයකි.

නාට්‍යයක වර්තයක් යනු අප සමාජයේ පැවතිය හැකි යැයි විශ්වාස කරන පුද්ගල ස්වභාවයක් හෝ පුද්ගලයෙකුට ආවේණික වූ මානසික හා සදාචාරාත්මක ගුණාංග යන්න යි. මෙහි දී පුද්ගලයකු යන සංකල්පය තුළ අතීතයක් වර්තමානයක් සහ අනාගත අභිමතාර්ථ තුළ ජීවත්වන මිනිසාට අර්ථගන්වයි. නාට්‍යයක වර්තයක් යනු අතීතයක් වර්තමානයක් හා අනාගතයක් සහිත පුද්ගල ස්වභාවයක් නම් එම වර්තයට අදාළ භෞතිකත්වයක් පවතී. එය මනාකල්පිත භෞතික තත්වයක් ද විය හැකිය. එය එසේ වන්නේ රචකයකු විසින් නිර්මාණය කරනු ලබන වර්ත සඳහා වන අතර සත්‍ය සිදුවීම් ආශ්‍රිතව රචනා වන නාට්‍ය පිටපත් හි සඳහන් වන වර්ත සඳහා ඔවුනොවුන් අත්විඳින ලද භෞතිකත්වයක් ඇත. භෞතික මෙම තත්වයන් පවත්න්නේ කාලයේ අවකාශය තුළ යි. එනම් වර්තයන්ගේ ස්වභාවයන් කාලය සමඟ ගමන් කිරීමක් සිදු වේ.

යම් නිරූපණ ශිල්පියකු විසින් එකී මිනිස් ස්වභාවයක් නිරූපණය කිරීමේ දී එම වර්තයේ අතීතය වර්තමානය හා අනාගතය තුළ ක්‍රියාකර යි. එනම් නාට්‍යයක එම වර්තය නිරූපණයට පෙර මුල මැද අග සහිතව එම වර්තය රචනා කොට හමාර ය. එහෙත්, නිරූපණ ශිල්පියකු විසින් එම වර්තය නිරූපණය කරනු ලබන්නේ අවසන් කරන ලද ස්ථානයේ සිට ඉදිරියට කොට එම වර්තයේ ආරම්භක අවස්ථාවේ සිට ය. නිරූපණ ශිල්පියකු විසින් එම වර්තයේ අතීතයට ගමන් කරයි. එම අතීත අත් දැකීම් ක්‍රියාවලිය අධ්‍යයනය කරමින් වර්තයේ මේ මොහොතේ පවතින අවස්ථාව කරා පැමිණෙයි. පසුව එම වර්තයේ ඉදිරිය, කුමක් වෙතොද ? කුමන ආකාරයකින් සිදුවෙතොද ද යන්න රංගන ශිල්පියා විසින් හඳුනාගෙන අවසාන ය. ඒ පිටපත ඇසුරින් එම වර්තයේ අනාගත ක්‍රියා ස්වභාවය පිළිබඳව ශිල්පියා හඳුනාගෙන තිබෙන හෙයිනි. මේ අනුව රංගන ශිල්පියකු විසින් වෙනත් මානයක පවතින ජීවිතයක අතීතය හා අනාගතය වෙත ගමන් කරමින් වර්තමාන ආබාහනයකින් එම වර්තය තුළ ක්‍රියාත්මක වෙයි.

වර්තයක ඓතිහාසික ගමන් මග පිළිබඳව අදහසක් දක්වන ස්ටැනිස්ලි ලාචස්කි විසින්, රංගන ශිල්පියකු විසින් තමන් විසින් නිරූපණය කරනු ලබන වර්තයේ අතීතය හඳුනා ගැනීමේ ක්‍රියාවලිය හා එහි දී සමස්ත වර්තයේ වත්මන් පැවැත්මට පාදක වන ඉතිහාස සංසිද්ධි හඳුනාගැනීමේ ක්‍රියාවලිය CREATIVE CIRCLE ලෙස හඳුන්වා දෙයි. එහි දී පිළිවෙලින් එම වර්තයේ නම, රැකියාව, දේශපාලනය, අත්දැකීම්, නිධන්ගත රෝග සහ සංසිද්ධීන්, එම වර්තය මුහුණ දුන් විශේෂ සිදුවීම් අකාරයෙන් එම වර්තයේ අතීතයට කිඳා බසී. එම වර්තයේ උපන් දා දක්වා මෙකී ක්‍රමය මගින් නවවට වර්තය තුළට ගමන් කළ හැකි බව පෙන්වා දෙයි. තාත්වික රංග කාර්යයේ දී මෙම ක්‍රමය මගින් වර්තය පවත්නා මේ මොහොත සඳහා වලංගු පදනමක් නවවට වසින් සපයා ගනියි.

නාට්‍ය පුහුණු කාලය තුළ දී රංගන ශිල්පියකු විසින් ඉහත සඳහන් කරන ලද ක්‍රියාවලිය තුළ නියැලෙමින් තමන් විසින් අධ්‍යයනය කරනු ලබන වර්තයේ අධි-අරමුණ දක්වා ගමන් කරයි. එනම් එම වර්තයට අදාළ නාට්‍යයේ නිශ්චිත කාලයකට යටත් අතීත වර්තමාන හා අනාගත යන ලක්ෂ අතර සැටිසරයි. මෙය අවසාන නිෂ්පාදනය වේදිකාගත කිරීමේ දී එම වර්තයට අදාළ අතීත පදනම මත සිට වර්තමාන හෙවත් එම මොහොතෙහි සිටිමින් , තමන් විසින් දන්නා එම වර්තය අනාගතය කෙරෙහි රංගන ශිල්පියා එම වර්තය හසුරුවයි.

මෙම අවස්ථාවේ දී නිරූපණ ශිල්පියා එම වර්තය නිරූපණය කරනුයේ එම වර්තයේ ඓතිහාසික ගමන්මගෙ හි සිට අනාගත ඉලක්ක අරභයා ක්‍රියාත්මක කරවමින් ය. එම වර්තය නිරූපණ ශිල්පියකු විසින්

නැවත නැවතත් රංගනය කරන විට උත්ත ක්‍රියාවලිය නැවතත් සිදුවෙයි. එනම් එකම වරිතයක් තුළ සිටීමත් එහි අතින් හා අනාගත යන ලක්ෂ දෙක අතර නැවත නැවතත් ගමන් කරයි.

මෙම පර්යේෂණය මගින් ඉහත සඳහන් කරන ලද තර්කය මත නිරූපණ ක්‍රියාවලියේ දී නිරූපණ ගිලිපියාගේ කාර්යභාරය කාලතරණ ක්‍රියාවලියක් ලෙස හඳුනාගත හැකි ද යන්න නාට්‍ය හා රංගකලා විෂය ක්ෂේත්‍රය තුළ ස්ථානගත කිරීමට බලාපොරොත්තු වේ.

සමීච්ච දඳ

වර්ත නිරූපණය, කාලතරණය, වර්තයක ඓතිහාසික ගමන්මග, කාලය සහ අවකාශය

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STUDYING THE IDENTITY OF THE MATERIAL USE OF FOLK ART AND CONTEMPORARY DRAMA

ජනරංග කලාව සහ සම්කාලීන නාට්‍ය කුළු ද්‍රව්‍ය භාවිතයේ අන්‍යන්‍යතාවය පිළිබඳව අධ්‍යයනයක්

Studying the identity of the material use of folk art and contemporary drama

ආර්.එම්. උෂාන් පෙරේරා.

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Abstract –

The playwright used the shape and form of a material in a theatrical way, while the contemporary creator attempts to show all the material expressions using a single wooden box. There, they seem to value the expression of the basic ideas of a material in the play. There is a tendency to log the identity of all materials into a single wooden box.

In the origins of the four-gesture theater, many things have changed and come into contemporary form, albeit in a small and complex way – in that era, theatrical gestures used to express ideas through stage or stage performances, backgrounds, and in general the form of objects; There have been changes in the identity of each material object. But at the same time, it seems that expressive literacy has been created by the materials used for a particular theater.

පර්යේෂණයේ අරමුණ

ජන රංගකලාව හා සම්කාලීන නාට්‍යයන් කුළු දී ද්‍රව්‍ය මූලික ප්‍රකාශනයන්ගේ අන්‍යන්‍යතාවයන් පිළිබඳව කුළුනාත්මක අධ්‍යයනයක් කළින් ද්‍රව්‍යමූලික වේදිකා නිර්මාණ සඳහා නව දැණුම උත්පාදනය කිරීම මූලික අරමුණ වේ.

ප්‍රතිඵලය

ජන රංගකලාව හා සම්කාලීන නාට්‍යයන් කුළු දී ද්‍රව්‍ය මූලික ප්‍රකාශනයන්ගේ අන්‍යන්‍යතාවයන් හඳුනා ගැනීම.

ප්‍රමුඛ පද

රංග භාණ්ඩ, අන්‍යන්‍යතාවය, ද්‍රව්‍යමූලික අන්‍යන්‍යතාවය, ප්‍රකාශනය, ද්‍රව්‍ය මූලික සම්බඳතාවය

සාකච්ඡාව

සතර අභිනයන්ගෙන් යුතු රංගකලාවේ ප්‍රභවය කුළු නොයෙක් නොයෙක් දේ සුළු හා සංකීර්ණ වශයෙන් වෙනස් වෙමින් සම්කාලීන මුහුණුවරට පැමිණ තිබේ. එම ආගමිකය කුළු වේදිකාව හෝ කරළිය මත කෙරෙන රංගය කුළින් අදහස් ප්‍රකාශ කිරීම සඳහා ආහාර්ය අභිනය ලෙස භාවිත කරන්නා වූ රංග භාණ්ඩ, පසුකල හෝ පොදුවේ ගත්විට ද්‍රව්‍යයන්ගේ ස්වරූපය හා ඒ ඒ ද්‍රව්‍යමය දෑ සඳහා ඇති අන්‍යන්‍යතාවයෙහි වෙනස් වීම් සිදු වී තිබේ. නමුත් ඒ කුළම යම් රංගයක් සඳහා භාවිත කරන්නා වූ ද්‍රව්‍යයන්ගේ මගින් ප්‍රකාශනාත්මක සාක්ෂරතාවයන් නිර්මාණය කරගෙන තිබෙන බවද පෙනෙන්නට තිබේ.

ශාන්තිර්ම පෙළපාලි හි සිට ජනරංගකලාවන් ලෙස හඳුන්වන සොකරි කෝලම් දක්වා ශ්‍රී ලාංකේය ජනරංගකලාවේ භාවිතයන් හා ස්වරූපයන් හඳුනා ගැනීමට පුළුවන. ශාන්තිකර්ම පෙළපාලි තුළ අන්තර්ගත වන්නේ විවිධ කතා පුවත් නාට්‍යමය ස්වරූපයන්ගෙන් කෙරෙන නිරූපණයන් ය. ඒවා තුළ ගැමි නිර්මාණකරුවා ඉතාමත් නිර්මාණශීලීව ස්වයං ප්‍රකාශනයන් සිදු කරයි. මෙහි විවිච්චන්වය නිබන්ධනේ මොවුන් විසින් එම රංගකාර්යයන් සඳහා භාවිත කරන්නා වූ සහර අභිනයන්ගේ නිර්මාණාත්මක බව තුළයි.

ගැමි නිර්මාණකරුවා විසින් යම් සෙනත් ශාන්තියක් අරමුණු කරගනිමින් සෙන් ශාන්ති පැවැත් වූ අතර එම ශාන්තිකර්ම තුළ යම් යම් දේව කතා, උපත් කතා, වරිත කතා හා ජන කතා වැනි බොහෝ දෑ අනුකරණය කරමින් පෙන්වන්නට විය. මෙහි වැදගත්කම වන්නේ මොවුන් මෙම නිරූපණයන් හි දී ඒවා සඳහා භාවිත කරන්නා වූ රංගභාණ්ඩ හා පසුතල තුළින් මොවුන් අදහස් ප්‍රකාශ කිරීම උදෙසා මනා පිටිවහලක් ලබාගෙන තිබීමයි. උදාහරණ වශයෙන් පහතරට ශාන්තිකර්මයන්හි ඇති රටයකුම හෙවත් රිද්දි යාගයේ දී කපුස්කාරිය නාට්‍යමය පෙළපාලියේ දී කාන්තාවක් දිය ස්නානයකොට හිස පිරා මල්වලින් සැරසී හිසෙහි කටුගසා සකසා ගනිමින් දීපංකර බුදුන්ට සිවුරක් පූජා කිරීමට සැරසෙන ආකාරය නිරූපණය කර පෙන්වයි. එහි අවසානයේ වද ස්ත්‍රීන් හට දරු ඵල ලැබුණු බව පෙන්වීමට දරුවකු හඳවයි. මෙම අවස්තාවේ දී පනාව, කොණ්ඩ කටු, මුහුණ බලණ කණ්ණාඩිය මෙන් ම අවසානයේ නළුවන දරුවා පවා කෙසෙල් පතුරු ආදාරයෙන් නිර්මාණය කරගන්නා වූ ආදේශක නිර්මාණයන් ය. එම රංගයට අදාළ රංගභාණ්ඩය එම භාණ්ඩයේ ස්වරූපය හැඩය රැකෙන පරිදි සකසා ගනිමින් භාවිත කෙරේ. එහි දී කිසිම අවස්ථාවක රංගයට භාවිත කරන්නා වූ භාණ්ඩයේ මූලික හැඩය විනාශ නොකර භාවිත කරයි. එම නිසා ම එම රංගයන් සමඟ සිටින ප්‍රේක්ෂකයා තමවත් විසින් භාවිත කරන්නා වූ රංග භාණ්ඩය එහි මූලික හැඩයෙන්ම හඳුනා ගැනීමට සමත් වේ.

මානව ශ්‍රද්ධාසාපයේ වර්ධනීය අවධි නිර්මාණය වන්නේ ද්‍රව්‍ය මූලිකවයි. මානවයා ඇවිදීමට දර විටක් භාවිත කිරීමේ සිට කෘතීම හඳවත් බද්ධකිරීම දක්වා වූ ආගමිකය ද්‍රව්‍ය මූලිකව මිනිසාගේ පැවැත්මට සේවය කරනු ලබයි. ඒ අනුව මිනිසාගේ මෙම ඓතිහාසික ආගමිකය තුළ වූ මානව හැසිරීම් රංගකූමියට ගෙන ඒමේ දී නිර්මාණකරුවා මිනිසාගේ ද්‍රව්‍ය මූලික සම්බන්ධතාවය පිළිබඳ අවධානය යොමු කළ යුතුය.

තුනතාය වන විට තාක්ෂණික රාමුව තුළ ගෝලීකත්වය කරාගොස් මිනිසාගේ හැසිරීම් නාට්‍ය රංගයකට ගෙන ඒමේ දී එය කුමන ආකාරයේ සංආර්ථ දැනවන්නක් වේද යන්න සහ එම ප්‍රයත්නය වඩා සාධනීය කරගන්නේ කෙසේද යන්න පිළිබඳව අධ්‍යයනය කිරීමට සිදු වී තිබේ.

භාණ්ඩ පරිහරණය මත ඇතිවන දාර්ශනික ස්තරය වේදිකා නිර්මාණ තුළින් දාර්ශනිකව සකවිජා කරන ලද අවස්ථා බොහොමයක් ඇත. නමුත් යම් වස්තුවක්, ද්‍රව්‍යයක් වේදිකාව මත තැබූ පසු ඒ සඳහා නිර්මාණය තුළ දී ඇතිවන වටිනාකම හා එහි සම්බන්ධතාවය පිළිබඳව සකවිජා කර ඇත්තෙ අල්ප වශයෙනි. වස්තුව යම් ප්‍රකාශනයක කොටසක් වූ පසු එම වස්තුව භාෂාවක් නිර්මාණය කර ගනියි. ආලෝකකරණය, සංස්ථාපිතය (*Composition of the Object*), වර්ණය, කාලය වැනි දේ තුළින් එම වස්තුව පෙනී සිටියි. වරිත, සිදුවීම්, සම්බන්ධතා සමඟින් ගණුදෙනු කරයි.

ශාන්තිකර්ම පෙළපාලි හා ජනරංග ආකෘතියේ සිට සමකාලීන තත්වය දක්වා විවිධ ප්‍රායෝගික විධික්‍රම ලෝකය තුළ භාවිත කර ඇත. මෙයර්හෝල්ඩ් වැනි නිර්මාණකරුවන් ස්වකීය මතවාදය තම නාට්‍ය නිර්මාණ තුළ ප්‍රේක්ෂකයා වෙත ද්‍රව්‍ය මූලිකව ආසන්න කිරීම පිළිබඳ විවිධ විධික්‍රම මගින් පර්යේෂණ කරන ලදී. එකී පර්යේෂණවල ප්‍රච්ඡල ලෙස විවිධ ආකාරයේ වරිත සංවර්ධනය කිරීම සඳහා මෙන් ම ප්‍රේක්ෂාව පිළිබඳව ද නව සංකල්ප මතු විය. නමුත් දාර්ශනික ප්‍රවේශයක් ලෙස ද්‍රව්‍ය මූලික මානවයාගේ සංස්කෘතිකමය, සමාජමය, ආර්ථිකමය සහසම්බන්ධතා හා ඒවායේ ඓතිහාසික ගමන්ගම හා නාට්‍ය වේදිකාව මත පවතින ද්‍රව්‍යයන්ගේ ප්‍රකාශනාත්මක අනන්‍යතාවය කුමන ආකාරයෙන් භාවිත කළ හැකි ද සහ එහි ප්‍රායෝගික ශක්‍යතා මොනවාද යන්නට පිළිතුරු සෙවීම නව අත්‍යවශ්‍යතාවයක්ව පවතී. ඒ දිනෙන් දින යාවත්කාලීනවන වේදිකා නාට්‍යකරණයේ සමකාලීන ස්වභාවය සඳහා මෙම ද්‍රව්‍යමූලික එළඹීම සෘජුව ම බලපාන හෙයින් ය.

වේදිකා නාට්‍යයක ද්‍රව්‍යමය වශයෙන් හඳුනා ගත හැකි කොටස් කීපයකි. වේදිකා පසුතල, රංග භාණ්ඩ හා ඇඳුම් පැළඳුම් ඊට අදාල කොටස් වේ. මෙම ද්‍රව්‍යමය භාවිතයන් 19 වන සියවසේ මුල් භාගය වනතුරුත් වේදිකාව මත ඒ ඒ වස්තූන්ටම අනන්‍ය වූ ආකාරයෙන් භාවිත විය. සොකරි කෝලම් වැනි ජන රංගයන් තුළ දී ජන රංග නිර්මාණකරුවා කරලියට රැගෙන එන ද්‍රව්‍යයන්ගේ අනන්‍යතාවය එලෙසම පවතී. කඳමලු, හාන්සි පුටු වැනි ඕනෑම ද්‍රව්‍යයක් අනුරූප වශයෙන් හෝ පවතී. ඒ අනන්‍යතාවය ආරක්ෂාකර ගනිමින් ය. හාන්සි පුටුව කිසිවිටෙකත් වෙනස් වස්තුවක් ලෙස භාවිත නොකරයි.

නමුත් විවිධ දාර්ශනික ප්‍රවේශ හා කාර්මික විප්ලවයේ බලපෑම මත ද්‍රව්‍යයන්ගේ සමාජමය කියවීම වෙනස් විය. එය සමකාලීන වේදිකාවට ද බලපෑම් එල්ල කළහ. විටෙක වේදිකාව මත දී භාවිත කරන ද්‍රව්‍යාත්මක දෑ රංගපරම නොවන ආකාරයෙන් යොදා ගන්නට විය. තවත් විටෙක එක සරු වස්තුවක් ද්‍රව්‍යමය වස්තූන් රැසකගේ නියෝජනයක් සපුරාලන්නට විය. නාට්‍ය අධ්‍යක්ෂකවරයා සීය ප්‍රකාශනාත්මක ක්‍රියාවලි සඳහා ද්‍රව්‍යමය මාදිලීන්ගේ භාවිතය වෙනස් මගකට යොමු කරන ලදී. මෙයර්නෝල්ඩ් වැනි නිර්මාණකරුවන්ගේ ප්‍රවේශයන් තුළ මෙය පැහැදිලිව දක්නට ලැබේ.

මෙයර්නෝල්ඩ් විසින් රංග න්‍යාය සංකල්පයක් ක්‍රිත්වයක් හඳුන්වා දී ඇත. එනම් රංගපරමවාදය, අභිසංස්කරණවාදය, කාය යාන්ත්‍රණවාදය ලෙස හැඳින්වේ. රංගපරමවාදය නාට්‍ය අධ්‍යක්ෂණය උදෙසාත්, අභිසංස්කරණවාදය වේදිකා පසුතලය උදෙසාත්, කාය යාන්ත්‍රණවාදය නළුවන් පුහුණු කිරීම උදෙසාත් ඔහු විසින් නිර්මාණය කළ රංග න්‍යායන් වේ.

මෙයර්නෝල්ඩ් තම ක්‍රමවේද තුළ පෙන්වා දුන් ප්‍රධාන විධික්‍රමයක් ද වන්නේ අභිසංස්කරණවාදයයි. මෙම විධික්‍රමය තුළින් හුදෙක් අර්ථගැන්වීමට උත්සාහ ගැනෙනුයේ රංග කාර්යයට සමගාමී ව වේදිකාව මත ඇති වේදිකා අවකාශය භාවිතය පිළිබඳ ව අදහසකි.

වේදිකාව මත කරනු ලබන රංගය තුළ යාන්ත්‍රික අංගවලන ප්‍රයෝග භාවිත කරන මෙයර්නෝල්ඩ්ගේ ක්‍රමවේදයන්ට ඊට ම රංගපරම වේදිකා භාවිතයක් පිළිබඳ ව අදහසක් මෙම න්‍යායයෙන් ගෙන එනු ලබයි. වේදිකාව මත විවිධ තලයන්ගෙන් යුතු යාන්ත්‍රික මුහුණුවරකින් යුතු රංග භාණ්ඩ සහ රංග පසුතල නිර්මාණය කරමින් ඒවා රංගයට සේව්‍ය කරගත යුතු ආකාරය පැහැදිලි කෙරේ. උදාහරණ වශයෙන් ගත් විට පඩිපෙළවල් , විවිධ හැඩයේ පෙට්ටි, විශාල ප්‍රමාණයේ රෝද , ඉතිමං මෙන් ම එල්ලන ලද සිලින්ඩර සහ විවිධ වස්තූන් පසුතලයට භාවිත කෙරිණි. එහිදී එම පසුතල තුළින් විධිමත් අවකාශයක් රූපමය වශයෙන් රංගයට අර්ථ සැපයූයේ නැත. නමුත්, මෙයර්නෝල්ඩ්ගේ කාය යාන්ත්‍රණවාදයේ මූලික අදහස වූ රංගන ශිල්පියාගේ යාන්ත්‍රික රංගෝපායන්ට එම පසුතලයන් මනා පිටිවහලක් සැපයූ බව කීමට හැකිය.

වේදිකාව මත ඇති වස්තූන් සමඟ කිසිදු සබඳතාවක් නොමැති වලන ඉරියව් පාමින් නළුවා වේදිකාව මත ක්‍රියාකරයි. වස්තූන් සමඟ ඒකාබද්ධව කරන්නා වූ ක්‍රියාකාරකම් හා දෙබස් අතර කිසිදු සම්බඳතාවක් නොවීය. නමුත් ඔහු විසින් අපේක්ෂා කරන ලද නළුවාගේ කය යන්ත්‍රයක් සේ ක්‍රියාකළ යුතු යැයි යන ක්‍රියාවලින් සිදු විය.

නාට්‍ය නිර්මාණයක දී එම නිර්මාණයට අදාල ශිල්පීන් විසින් නිරූපණය කරනු ලබන ප්‍රකාශනය සමඟ ඔවුන්ට අනන්‍යතාවයක් නිර්මාණය වෙයි. එය ඔවුන්ගේ පෞද්ගලික අනන්‍යතාවය නොව එම ප්‍රකාශනය තුළ සිටින වර්තමාන අනන්‍යතාවය යි. එය සමකාලීන නර්තනයක් දී එම නර්තන ශිල්පියාට ද පොදු ය. වේදිකාව මතට යම් ශිල්පියකු පැමිණි පසු එතැන් පටන් ඔහු හෝ ඇය යම් ප්‍රකාශනයක මැදිහත්කරුවෙකි. එම මැදිහත් වීම නිර්මාණයේ සංස්කෘතිකමය, දේශපාලනමය, පුද්ගලාබද්ධ ආස්තානකට සේවය කරයි.

වේදිකාව මත සිටින නවතම නිර්මාණ ප්‍රකාශනය තුළ අනන්‍යතාවයක් ඇතිවන්නා සේම වේදිකාව මත ඇති සියලු දේ සඳහා ද අනන්‍ය වූ ප්‍රකාශනයක් ඇත. ඒ කිසිවක් නිර්මාණය සඳහා සම්බන්ධ නොවන දේ නොවිය යුතුය. වේදිකාව මත යම් ද්‍රව්‍යයක් වස්තුවක් ඇත්නම් එම වස්තුව වංචලව හෝ නිශ්චලව නිර්මාණයේ ප්‍රකාශනය සඳහා සම්බන්ධ වේ. අධ්‍යක්ෂකවරයා විසින් යම් වස්තුවක් වේදිකාව මත සංස්ථාපිත කරන්නේ නම් එහි දී ඔහු ඉතාමත් සැලකිලිමත් විය යුත්තේ වේදිකා අවකාශය තුළ සියලු ම වස්තූන් සඳහා භාෂාවක් පවතින නිසා ය.

සෑම වර්ණයකට හා හැඩයකට ඒ ඒ සමාජයන් තුළ විවිධ අර්ථ නිරූපණයන් පවතී. වර්ණ, හැඩතල ඉන්ද්‍රියගෝචර වන විට ඒ ඒ සමාජ තුළ ජීවත්වන පුද්ගලයන් එම අර්ථය හඳුනා ගනියි. එනම් වර්ණය, හැඩය තුළ භාෂාවක් අන්තර්ගතව පවතිනවා යන්නයි. එම වර්ණය, හැඩය යම් වස්තුවක් සමඟ මිශ්‍රව පෙනීසිටිය දී එම භාෂාත්මක ප්‍රකාශනය එලෙස ම පවතී. මෙම වස්තුව හෝ ද්‍රව්‍යය කාලය නැමති අවකාශයේ පවතින්නකි. එවිට කාලය සමඟ මිශ්‍ර වූ විට ද ප්‍රකාශනාත්මක භාෂාව කීවු වි නොමැරී පවතී. අලුත් දෑ පරණ දෑ වශයෙන් අප විසින් හඳුන්වන්නේ එම ප්‍රකාශනයේ එක් හඳුනා ගැනීමකි.

ජලේටෝගේ ද්‍රව්‍යවාදී සංකල්පය තුළ දී “කාලය” පිළිබඳව අදහසක් ඉදිරිපත් කරයි. “කාලය” යනුවෙන් යමක් පවතින්නේ වෙනස්වීම මත බවත්, වෙනස්වීමක් නොමැතිනම් කාලය යන්නක් නොපවතින බවත් සඳහන් කරයි. ඒ අනුව ඔහු පෙන්වා දෙන්නේ ද්‍රව්‍ය මගින් කාලය ඉන්ද්‍රියගෝචර කරවන බවයි. යම් ද්‍රව්‍යයක් සමඟ අප කාලයක් සිටිය දී එම වස්තුවේ වෙනස අපට නොදැනෙන බවත්, එම වස්තුව එක්වරක් දැකීමෙන් පසු නැවතත් දීර්ඝ කාලයකින් පසුව දකිනවිට එහි වෙනස ඉන්ද්‍රියගෝචර වන බවත් ඔහු පෙන්වා දෙයි.

වේදිකාව මත කරනු ලබන නාට්‍ය නිර්මාණයක් යනු මිනිසාගේ පැවැත්මෙහි පැතිකඩකි. එම පැතිකඩ තුළ ඒ ඒ වර්ග තුළ ඓතිහාසික ගමන්මගක් ඇත. මේ මොහොතේ පවතිනවා මෙන්ම එම වර්තයන් වේදිකාව මත අරගල කරන්නේ අනාගත යම් දෙයක් වෙනුවෙන් ය. මේ ක්‍රියාවලිය තුළ ඊට සම්බන්ධ කරගන්නා වූ දේවල් ද මොවුන්ගේ මේ ඓතිහාසික ගමන්මග තුළ දී මොනායම් හෝ ආකාරයකින් සම්බන්ධ වී ඇත. එම වර්තයන්ගේ ඓතිහාසික පැවැත්මට සාපේක්ෂව ඔවුන් භාවිත කරන වස්තූන්ට ද ඓතිහාසික පැවැත්මක් තිබිය යුතු ය. උදාහරණයක් වශයෙන්, වේදිකාව මත දීර්ඝත සෝපාවක් ඇත්නම් එම සෝපාව විසින් ගතකරන ලද කාලයක් ප්‍රකාශ වේ. ඒ එම සෝපාව විසින් එය දීර්ඝත තෙක් ගත කරන ලද කාලය යි. එම සෝපාව භාවිත කරන වර්ග එම සෝපාව සමඟ එම කාලය එකට ගතකොට ඇත. නැතිනම් එම දීර්ඝත සෝපාව සිද්ධි ගලායාම තුළ මොවුනට හදිසියේ සම්බන්ධ වීමේ හේතුවක් තිබිය යුතුය. සෝපාව දීර්ඝත ක්‍රියාවලිය එක්වර සිදු වූවක් නොවේ. කාලයක් පුරාවට සිදු වූවකි.

උක්ත වශයෙන් දක්වන ලද ද්‍රව්‍ය මූලික අනන්‍යතාවය ජනරංගකලාව තුළ පැවතීණි. ඒ එම නිර්මාණ තුළ ඒ ඒ රංගභාණ්ඩයන් සැබෑ භාණ්ඩය හෝ ද්‍රව්‍යය ලෙස අනුරූප වශයෙන් භාවිත කරමින් ඒ ඒ අවස්ථාවට අදාළ හා අවශ්‍ය භාණ්ඩය නියමාකාරයෙන් භාවිත කළ හෙයිණි.

සමකාලීන රංගකලාව තුළ ද්‍රව්‍ය භාවිතයේ දී සූච්‍ය අර්ථය ගෙන ඒමට ඒ ඒ වස්තුවේ ලක් හා ස්වරූපයන් අනාවරණ සාදකයක් ලෙස සලකන බවක් නොපෙනේ. මෙම පර්යේෂණයට අදාළ ප්‍රධාන සංදීක්ෂානය නිර්මාණය වන්නේ එවිට ය. ඊට හේතුව නම් සමකාලීන නාට්‍ය නිර්මාණ තුළ දී සෑම ද්‍රව්‍යයකම හැසිරීම හා ප්‍රකාශනය උදෙසා භාවිත කරන්නේ ලී පෙට්ටියකි. පුටුව, සෝපාව, බඩු මල්ල, බෑගය, දරුවකු ලෙස මෙන් ම විවේක යම් වර්තයක් සමඟ සම්බන්ධවන්නා වූ අනෙක් වර්තය ද වන්නේ

ලී පෙට්ටියකි. මෙහි දී මූලිකවම ජනරංග ශිල්පියා විසින් කරළිය මත භාවිත කරන ලද වස්තූන්ගේ අනන්‍යතා ලක්ෂණය සමකාලීන නිර්මාණකරුවන් බිඳ තිබේ. සමකාලීන නිර්මාණකරුවා එක ලී පෙට්ටියක් මගින් වස්තූන් හෙවත් ද්‍රව්‍යයන් රැසකගේ ප්‍රකාශනය ගෙන එන අතර ජනරංග තුළ දී ද්‍රව්‍යයන් රැසක් එම ප්‍රකාශනයක් සඳහා යොදා ගනී. සමකාලීන නිර්මාණකරුවාට යම් ද්‍රව්‍යයක ප්‍රකාශනය ගෙන එමට ඒ ඒ ද්‍රව්‍යයේ ස්වරූපය හෝ නැඩය අත්‍යවශ්‍ය වී නොමැත.

සංක්ෂිප්තයක් ලෙස ගත්විට ජනරංගකරුවා විසින් ද්‍රව්‍යයක හැඩය හා ස්වරූපය අනුරූප වශයෙන් ස්වරූපයෙන් රංග කාර්යයේ දී භාවිත කළ අතර සමකාලීන නිර්මාණකරුවා විසින් සියලුම ද්‍රව්‍යමූලික ප්‍රකාශනයන් එක ලී පෙට්ටියකින් භාවිතයෙන් පෙන්වීමට උත්සහ ගනිමින් සිටියි. එහි දී ඔවුන් රංගයක දී ද්‍රව්‍යයක මූලික “අදහස් ප්‍රකාශනය” වැදගත් සේ සලකන බව පෙනෙන්නට තිබේ. එහි දී සියලුම ද්‍රව්‍යන්ගේ අනන්‍යතා ගුණය එක ලී පෙට්ටියකට ලඝු කිරීමට නැඹුරු වී තිබේ.

ආශ්‍රිත ග්‍රන්ථ නාමාවලිය

එංගල්ස්, ෆෙඩ්ට්ස් ,සමාජවාදය මනෝරාජ්‍යයෙන් විද්‍යාවට, මාක්ස්වාදීන්ගේ අන්තර්ජාල ලේඛනානාමය,1892.

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THE PASSION PLAYS IN SRI LANKA DURING THE PORTUGUESE ERA

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The Passion Play is a stage drama that depicts the events and the suffering of Christ during his last days. The PP has strong roots in Sri Lanka and is said to have its origins in the Portuguese around 400 years ago. The documentation regarding the Portuguese period in Sri Lanka is limited as many of the literature did not survive the Dutch era, due to the opposition and suppression by the Dutch who attempted to eliminate loyalty for the Portuguese and their converts. The Portuguese missionaries that arrived in Sri Lanka under the mandate of the Paradoa, used drama to preach and attract converts. The missionaries adopted local practices and traditions in worship learning local language and music to drive their message. The research aims to in looks at the development of Christian Drama, with a focus on the Passion Play. The analysis finds that Drama and the Music was used in Portuguese Period extensively. The research involved examining, practices in Goa, where some close parallels to the practices in Sri Lanka that are noteworthy in Goa. Certain commonalities were also observed in practices in the Philippines and Vietnam. However, the Passion Play was not performed as initially believed in Sri Lanka and that the Lenten practices were limited to Paso and that the development of the Passion Play as a unique Genre in Sri Lanka was a later development.

The Passion Play in Sri Lanka is very dominant part of celebrations during the holy week. The Passion plays held at Duwa, Pesalai, Batticaloa, Bolawatte have deep roots and said to date back several centuries. The Passion plays and

the passion music in Sri Lanka developed into a unique genre. Sarachchandra, writes in his book 'Folk Drama of Ceylon' that the Duwa Passion Play and the Pesalai Passion Play dated back to the 16th Century. Several other studies have also dated the Passion Play to this era or close to this era. There is no doubt that the beginnings of Christian Drama had its beginnings with the introduction of Roman Catholic Religion to the country, by the Portuguese Missionaries. The research also shows that there were no written or documented evidence of a passion play during the Portuguese Era. However, we see that drama was used by missionaries, who arrived in the Island in the early 17th Century, particularly the Jesuits. They used drama as a pedagogical instrument effectively. The Paso, use of statues in street processions to depict the sufferings of Christ was the main dramatic performance during Easter. The research shows that the driving force in the passion plays that are in existence today, was the Oratorian Priests, that came to Sri Lanka during the Dutch Era and the Oberammergau play that influenced playwright and producer Mr. Lawrence Perera.

The Portuguese arrived in Sri Lanka under the mandate of the missionaries, particularly the Jesuit priests, used drama to preach and attract converts. The drama included the Christian music which was enriched by the musical instruments, and melodies. The history of the Dramatic Period and Material during the Portuguese Era in Sri Lanka is weak. According to

Fr Edmund Peiris "since none of the dramas produced by these missionaries

have come down to us, it is not possible to give a correct appreciation of them, they were most probably modeled on European dramas of the Period”. (Peiris, 2013, p. 96)

The course of development of drama in the foreign lands were roughly similar. The initial activity was limited to a singing of a few canticles in small temporary church huts. Thereafter a few processional displays depicting the some events in the life of Jesus and Saints and Martyrs were enacted. This gradually led to the next steps of development of fully fledged liturgical plays, and partly secular plays. Most of these dramatic activities were in Latin or Portuguese. Examples include Angola, Mozambique, Guinea, Portuguese, Brazil, India and Sri Lanka. Many of the fully-fledged stage representations of plays were brought from Portugal to India, and possibly Sri Lanka. They were largely based on events connected with Lent, the Crib, the Stories of the Three Maggi (Three Kings) dramatized stories such as the Cycle of the Nativity (Ciclo das getas do Natal), the Cycle of Passion Plays (Ciclo das festas de Paixao) and other dramatic enactments of the legends of Saints and Martyrs. (Goonetilleka, 1984, p. 27) Other Portuguese plays thematically connected with the Crusades were also shown to the Christian converts in India at the main centers in Goa, Dmao, Diu, Bassein, Bombay, Cochin.

The earliest records show that the Jesuits were involved in dramatic productions very early in the dominion period. “The Ceylon records the Jesuits speak of a dramatic performance in 1602, only seven months after their arrival in the island to celebrate the Chapel in Colombo”. (Peter, 1963, p.31).

According to Perera (1938) a letter Diego da Cunha, dated 10th December 1603 states as follows “I also wrote of how the first Mass was said on the Feast of Saint Andrew in our church... In the evening a small performance was given,

representing Faith and Religion given, representing Faith and Religion giving battle to Idolatry.” (Perera, 1938, p. 16)

In 1604 a pageant held by residents of the area this depicted the story of ‘Saint Simeon’. “... receiving the infant Jesus in his arms and taking him into the Jewish temple. It was much appreciated by the audience.... this took place last year”. (Rohan, 2009, p. 84)

A drama staged on 2nd February 1604 to mark the solemn inauguration of the new church built in Colombo is recorded. According to W.D Peter (1970) performances of this nature seem to have been an annual event of the on the 2nd February when the feast of the Church was celebrated. (Peter, 1970, p. 31)

“In 1609 a play was performed to the public on blessed virgin feast in front of the Colombo community. A dramatic performance was given to the great delight of all the anniversary of the Purification of the argument Blessed Virgin, the titular feast of our church (2nd Feb) the argument of the Drama was a comparison between the Synagogue with the Ark of the Covenant and the church with the Mother of God. The stage equipment was far from ordinary and the acting was much appreciated”. (Peiris, 1978, p. 95) A letter from Fr. Emmanuel Barrada in 1613, states that “ A representation of the Creation of the world and incarnation of Christ gave great pleasure to the people and was much appreciated by the gentiles” (Peter, 1970, P. 86)

The Paso is enacted in Sri Lanka with Lenten Hymns being sung throughout the pageant. The Paso gets its names form the lifelike painted wooden sculptures that are called Pasos. The statues are used to depict individual scenes of the events that happened between Jesus' entry in Jerusalem and his burial, or images of the Virgin Mary showing restrained grief. The statues are used in floats. Many of these floats in Spain were created by famous Spanish artists such as Gregorio

Fernandez, Juan de Mesa, Martínez Montañés or Mariano Benlliure. Some of these "Pasos" have been preserved for centuries. Usually, the "Pasos" are accompanied by marching bands performing "Marchas procesionales" a specific type of compositions, devoted to the images and fraternities.

The dominant dramatic performance in Lent in Goa is the Paso. In Goa, the Pasos is believed to be derived from the words Santos Pasos, the holy steps. The Paso is practiced annually during Lent at Goa and in other Catholic communities in India.

The representations of the Passion are made by means of images and figures, although at one period in the past living beings also took part in them. The Jesuit Priest Fr Gaspar Barezo, said to have introduced these theatrical type representation in Goa, in the mid 16th Century.

On a stated day (generally Sunday) of each week in Lent, a sermon was preached on a passage of the Passion. A curtain raised, and a representation of the passage displayed on a movable stage before the high altar, only the image of Christ being shown. The representations are made in the following order: Christ in the Garden of Gethsemane; Christ in prison; the Scourging; the Crowning with Thorns; the Ecce Homo; the Carrying of the Cross; lastly (on Good Friday) the Crucifixion.

On Palm Sunday, the image of Christ carrying the Cross is taken from the stage and borne in procession; and on Good Friday, after the figure is devoutly taken down from the Cross (invariably behind the curtain) it is carried in the procession, the image of the Blessed Virgin also accompanying on both of these days. On the last two occasion the procession is always interrupted by a sermon preached from a pulpit erected outside the church. (Knight, 2020)

According to Pilendran when performed during lent, each mystery was shown or performed separately. When

shown on good Friday, almost all the mysteries were shown together. Usually the Paso ended with a religious procession. Generally the statues of Christ and Mother Mary were taken in the procession. These statues were sculptured and brought from Goa or sculptured in Ceylon. (Pilendran, 1998, pp. 97-99)

The performance of the Paso in Goa, in the mid-16th Century, drove the Lenten worship in the region. We see the missionaries, performing the Paso in Sri Lanka during the early 17th -Century. The dominant practice during the period was the Paso, and it can all but be ascertained that there were no passion plays performed during this period. The Passion Play was a later development and takes over the Paso to become the main stay. The Passion Play there was a later development that arose from the work of Father Jacome Gonsalves. The play however, had its own script and was based on the works of Father Jacome's Dukapraphi Natya. The Passion Play based on Fr Jacolme Gonsalvez's work used puppets. This is a unique genre not seen anywhere else in the world. The Passion Play in Sri Lanka was modernized by Lawrence K Perera, based on the Oberammegau. The Duwa Passion Play is based on the scriptural accounts and more aligned with the work of Oberabermagau, possibly influenced by Boralessa Passion Play

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REPRESENTATIONAL POLITICS AND CONTEMPORARY ARTWORKS IN SRI LANKA

Representational Politics and Contemporary Artworks in Sri Lanka பிரதிநிதித்துவ அரசியல்தனமும் இலங்கையில் சமகால காண்பிய கலை வெளிப்பாடுகளும்

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கலைப் படைப்பாக்கங்கள் அரசியல், பொருளாதார, மற்றும் பண்பாட்டு நிலவரங்களை வெளிப்படுத்தும் அதேவேளை விற்க மற்றும் வாங்கக்கூடிய பண்டமாக அல்லது கலை படைப்பாக்கத்தில் ஈடுபடுவது என்பது வருமானத்தை ஈட்டிக்கூடிய தொழிலாக இருந்து வந்துள்ளமையினை கலை வரலாற்று ரீதியில் புரிந்துகொள்ள முடியும். அதே நேரம் அறிவியல் மற்றும் தொழில்நுட்பத்தின் மரிணாமத்திற்கேற்ப ஒவ்வொரு காலகட்டத்திலும் புது ஊடகங்களும், உத்திநடப்பங்களும், மற்றும் கலை சார்ந்த கோட்பாடுகளும் காண்பிய கலை உருவாக்கங்களில் செல்வாக்குச் செலுத்தியிருப்பதை அவதானிக்க முடிகிறது. பொதுவாக பாரம்பரிய கலை வெளிப்பாடுகள் பிராந்தியங்கள் அடிப்படையில் வேறுபட்டிருக்கும் அதேவேளை சமகால காண்பிய கலை வெளிப்பாடுகள் எனும் போது உலகின் பல திசைகளிலும் ஒரு பொது கருத்தியல் செல்வாக்குச் செலுத்துவதை படைப்பாக்கங்கள் தரும் அனுபவங்கள் வாயிலாக நன்கு உணர முடிகிறது. இந் நிலையில் இலங்கையில் சமகால காண்பிய கலை வெளிப்பாடுகள் எனும்போது ஏனைய நாடுகளில் நிகழ்வது போலவே அவை பூகொளமயமாதலின் அனுபவங்களோடு மிக இயல்பாக தொடுக்கப்பட்டிருப்பதையும், ஊடக முதன்மை இழப்பு (dematerialization) எனும் பொதுக் கோட்பாடு முன்னிலைப் படுத்தப்பட்டிருப்பதையும் பொதுவாக படைப்பாக்கங்கள் பிரதிபலிக்கின்றன. விற்பனைக்கு முன்னுரிமை வழங்காத இந்த கோட்பாட்டின் முன்னெழுக்கை அறும் சார்ந்த பல தத்துவங்கள் அடிப்படையாக இருக்கும் அதே வேளை பிரதிநிதித்துவம் மற்றும் அரசியல்தனம் (representation and politics) என்பவற்றின் அர்த்தம் திரைவிலக்கப்படுவதையும் முக்கியமானதாக அவதானிக்க முடியும்.

இந்த ஆய்வானது இரு வேறுபட்ட பெழி பேசும் சமூக மின்னணிகளைக் கொண்ட இரு சிரேஸ்ட சமகால காண்பிய படைப்பாளிகளது விற்பனை சாராத படைப்பாக்கங்களை அடிப்படையாகக் கொண்டுள்ளது. இங்கு நான் கொழும்பை வசிப்பிடமாகக் கொண்ட ரோசிரியர் சந்திரகுப்த தேனுவல மற்றும் யாழ்ப்பாணத்தைச் சேர்ந்த கலாநிதி தாமோதரம்பிள்ளை சனாதனன் என்ற இரு கலைஞர்களது கலை வெளிப்பாடுகளில் எவ்வாறு பிரதிநிதித்துவ அரசியல்தனம் சார்ந்த கருத்தியல் பிரதிபலிக்கிறது என்பதை கூர்ந்து அவதானம் செலுத்துவதனுடாக சமகால கலைக் கோட்பாட்டிற்கும் கலை வெளிப்பாட்டிற்குமாக மிணைப்பை அடையாளம் காண முற்படும் அதேவேளை சமகாலத்தில் கலை வரலாற்றை கட்டமைப்பதில் எவ்வாறான சவால்கள் உள்ளன என்பதையும் பட்டியலிடுகின்ற முனைகிறேன். இவ் ஆய்விற்கான தரவுகளை கலைஞர் உரை எனும் தலைப்பின் கீழ் நிகழ்த்தப்படும் கலைஞர்களது னான கலந்துரையாடல்கள், நேர்காணல்கள், மற்றும் இவ் இரு கலைஞர்களது படைப்பாக்கங்கள் சார்ந்து வலைத்தளங்களில் வெளியிடப்பட்டிருக்கும் கட்டுரைகளிலிருந்து பெற்றுக்கொண்டுள்ளேன்.

Key Words: dematerialization, representation, politics

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DEGREE QUALIFICATION EXPECTATIONS FOR MARITIME EDUCATION IN SRI LANKA: SHIPPING COMPANIES

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ABSTRACT

Aiming at the improvement of the career requirements of the seafaring industry and recognizing that the maritime industry has evolved from a traditional skill based, labor-intensive industry to an industry demanding sophisticated tertiary education, this study firstly investigates Shipping Company degree qualification expectations and then inquires from the same respondents the importance of simulator studies at tertiary level Maritime Education and Training. The methodology has 10 participant shipping companies where the Systematic sampling procedure was selected due to the prevailing COVID 19 environment. A Google Questionnaire collected data. The findings indicate 50% of the respondents Strongly Agreed/ Agreed that seafarers with BSc or above will help them to aggressively perform in finding job placements; good Sri Lankans lost their first promotion opportunity to a less experienced graduate from another seafaring country. 90% of the respondents Strongly Agreed/ Agreed that a BSc in Maritime Sciences must include simulator training module/s for making it highly standardized, and administrations must emphasis on this regard. Thus, the findings of this study aim, through systematic and synchronic comparison, to form one component of a model for formulating a policy paper on the necessity and importance of having a BSc degree in Maritime Sciences in Sri Lanka.

Key words: Shipping Companies, BSc in Maritime Sciences; Sri Lanka

INTRODUCTION

The Review of Maritime Transport (2020: 11) states that at the beginning of 2020, ‘the total world fleet amounted to 98,140 commercial ships of 100 gross tons and above, equivalent to a capacity of 2.06 billion dwt. In 2019, the global commercial shipping fleet grew by 4.1 per cent, representing the highest growth rate since 2014’ (p. 11). The Review further identifies ‘a strengthened case for digitalization and dematerialization’ and ‘adopting technological solutions and keeping abreast of the most recent advances in the field will become a requisite and no longer an option (p. 14).

Conforming to the above requisite efficient, effective and innovative solutions, especially for upgrading Marine Education and Training (MET) Maritime industry is mandatory. Lau and Ng (2015) state that contemporary maritime education has transformed from a practical, hands-on approach to tertiary education emphasizing on business and analytical skills, as characterized by the increasing number of tertiary institutions offering under- and postgraduate maritime programs. With the growth of the world fleet, recruiting qualified, competent and properly trained seafarers has become ever

more essential to shipping company operations.

Agreement comes from Mangan et al. (2001) to reinforce the need for maritime programs to adopt a wider strategic view, as opposed to a narrow, operational view reaching tertiary level. A maritime graduate with comprehensive theoretical knowledge and practical competencies who would be able to serve in the shore-based industry as well as onboard vessels after completing the degree programme.

The importance of marine simulators is stress by Suppiah (2007) who states that the use of marine simulators combined with traditional instruction appears also to be an effective and comprehensive method of facilitating learning. It is important that conscious attempts are made to bridge the gap between theoretical instruction and practical application he further states that shipping companies should be encouraged to cooperate and contribute to the scholarship of students by giving them an opportunity to undergo proper training either onboard or through the use of marine simulators. The steps taken are more likely to ensure that highly competent seafarers are employed onboard.

METHODOLOGY

The methodology sought to investigate the following research questions which carry high relevance to MET practices in the Sri Lankan context.

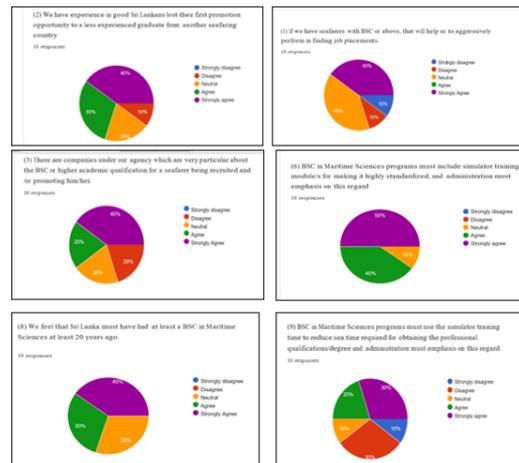
1. What are the Degree qualification expectations of shipping companies for maritime education in Sri Lanka?
2. How important is the use of marine simulators for degree level maritime education in Sri Lanka?

The research framework has 10 participant shipping companies: Ceyline Shipping, Pacific International Lines

(PIL), CMA CGM & ANL (Singapore) (Pvt) Ltd., Pacific Carriers Limited (Singapore), Marinec Services (Pvt) Ltd. and ABC Shipping (Pvt) Ltd. Systematic sampling procedure was selected due to the prevailing COVID 19 environment. A Google Questionnaire with 10 questions collected data.

RESULTS

Selected descriptive figures of results are tabled below emphasize that the majority of the Maritime Companies strongly agree/agree that a BSc degree or above in Maritime Sciences are advantageous to Sri Lankan seafarers.



DISCUSSION

The findings indicate 50% of the respondents Strongly Agreed/ Agreed that seafarers with BSc or above will help them to aggressively perform in finding job placements; good Sri Lankans lost their first promotion opportunity to a less experienced graduate from another seafaring country. 90% of the respondents Strongly Agreed/ Agreed that a BSc in Maritime Sciences must include simulator training module/s for making it highly standardized, and administrations must emphasize on this regard.

CONCLUSIONS

The inferred generalizations from the results reflect a keen interest in Shipping Companies to have BSc in Maritime Sciences as a requirement for tertiary level Maritime workforce education. This study provides evidence for Suppiah's (2007) claim that the use of marine simulators combined with traditional instruction is an effective and comprehensive method of facilitating MET.

A limitation identified in this study is that the number of shipping companies who responded were limited to 10. One reason could be the prevailing era of the COVID 19 pandemic.

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COMTEMPARY CONSEQUENCES OF THE PREVENTION OF TERRORISM ACT IN SRI LANKA AND ITS IMPACT ON HUMAN RIGHTS

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ABSTRACT

The purpose of this research paper is to critically examine the adverse impact of the Prevention of Terrorism Act (PTA) on human rights in Sri Lanka. It also examines the extent to which the provisions of this Act have undermined the ordinary substantive and procedural penal laws of the country and fundamental human rights and liberties of the individuals, and the incompatibility the provisions of this Act with internationally recognized human rights standards. The research further examines the recommendations of international human rights mechanisms and international economic influence on Sri Lanka because of the adverse impact of the PTA on citizen's rights and freedoms. Hence, the primary question of this research focuses on whether the PTA has been succeeded in achieving its goal of combating terrorism or whether it has been used as a tool to violate democratic values, human rights, and the principles of good governance in the country. To date, a limited number of studies have investigated the impact of PTA; however, this study focuses on the contemporary consequences of the Act.

Key words: Prevention of Terrorism, Human Rights, Sri Lanka

However, later in 1982 the provision concerning the temporary measure has been repealed from the principal enactment. After that there was only one amendment took place in 1988. The act deals with the offences and penalties, investigation of offence, detention and restriction orders, prohibition of publications and trial.

The several provisions of this Act have been strongly criticized by international human rights organizations and researchers due to its inconsistencies with international human rights standards. This situation has a negative impact not only on the human rights field in Sri Lanka but also on the international economic benefits to Sri Lanka. The UN human rights mechanisms have repeatedly recommended Sri Lanka that the Prevention of Terrorism Act be repealed. The government of Sri Lanka drafted an anti-terrorism bill to replace the PTA in 2018. The constitutionality of the said bill was questioned before the Supreme Court and the court ruled that certain provisions are inconsistent with 1978 Constitution: and thus, the bill was recently withdrawn by the Sri Lankan Parliament.

METHADALOGY

This study adopts a qualitative methodology. The study consists of collecting and analyzing primary and secondary resources. The main focus of this paper is to critically analyze the provisions of prevention of terrorism act

INTRODUCTION

the Prevention of Terrorism Act (1979) (PTA) is the primary legislation in prevention of terrorism in Sri Lanka. This act was intended to be a temporary measure when it was enacted in 1978.

with international standers on human rights and evaluate the consequences of incompatibility.

The review of literature is focused on the Prevention of Terrorism Act, its amendments, and the regulations. In addition to the PTA, the Constitution of Sri Lanka, Penal code, criminal procedure code and international human rights instruments, resolutions and reports are considered as a primary sources. As secondary sources research papers, books, and judicial decisions on PTA.

RESULT

The Prevention of Terrorism Regulation No. 1 of 2021, promulgated on March 12, 2021, is the most recent legal action taken by the Executive Branch of Sri Lanka under Section 27 of the PTA. In response to this regulation at the domestic level, public interest fundamental rights petitions were filed in the Supreme Court. The Supreme Court issued an interim order suspending the implementation of the regulation and the case is still pending before the Supreme Court.

The most recent data from international organizations, including the United Nations Human Rights Council and the European Parliament has been a series of resolutions and reports adopted by those organizations since 2012. In response to the aforementioned actions, in June 2021, the European Parliament passed a Resolution on arresting under the PTA in Sri Lanka. As a result, the European Parliament decided to temporarily withdraw Sri Lanka's GSP + status.

The latest resolution, which was passed on March 2021, 46/1, by the UN Human rights Council requested to Sri Lankan government to review PTA in line with the international Human rights obligations. Following these decisions, the President appointed an Advisory Board under Section 13 (1) of the PTA, which provides

for the consideration of requests from persons detained under the Act and released several detainees under the PTA.

DISCUSSION

It has observed that The PTA has several highly controversial provisions, such as long-term detention and admissibility of confession. As a result of these provisions, constitutionally guaranteed human rights, the Penal Code, and the Code of Criminal Procedure have all become subordinate and redundant. It is further observed that not only the provisions of the Act but also the regulations promulgated under the Act do not comply with the international human rights standards prescribed by international human rights law such as the Universal Declaration on Human Rights (UDHR) and the Covenant on International Civil and Political rights (ICCPR). Seemingly, the Act has completely ignored the interests of the suspects and accused persons as well as the state obligations established by the social contract between the ruler and the citizen. At the same time, it must be noted that the procedural safeguards pertinent to the penal process are not privileges but the rights of every suspect and accused person.

In addition to the PTA, the 1948 Public Security Ordinance, which drives from the Chapter XVIII of 1978 of the Sri Lankan Constitution, exists to National Security. It is critical that these two branches of law operate concurrently in the country in case of emergencies. Restricting the interpretation powers of the judiciary to the Bill alone deprives the judiciary's creative interpretations. However, analyzing the Executive's immediate response to the latest protests and disadvantages arising locally and internationally under the Prevention of Terrorism Act, it appears that strategic measures to mitigate the seriousness of the

incident were implemented within the Act itself.

CONCLUSION

Overall, this study affirms that a just and free society can be built through the establishment of a legal system in Sri Lanka that respects and protects fundamental human rights, as enshrined in the preamble of the current Constitution. PTA, which was enacted concurrently with the Constitution, continues to contradict the meaning of the ground values of human rights, and undermining the concept of the rule of law and good governance; accountability, transparency. The findings of this study emphasizes the need of implementation of a new legal framework for the fight against terrorism in line with international human rights standards.

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A MULTI METHOD STUDY IN QUALITATIVE STUDY IN MANAGEMENT: A SYSTEMATIC REVIEW

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ABSTRACT

The main aim of this study is to explain what Multi-Method research is, the key to Multi-Method design in qualitative research, and how Multi-Method research could be carried out in qualitative research in different areas of the management field. This article has used a systemic review of the literature to show the Triangulation of the data to validate and provide credibility by complementing the research results and their application to strategic management. Triangulation in Multi-Method research was also analyzed in this study. This study reviewed 25 articles based on reputed data base system. The author has discussed how Triangulation could be used in "Multi-Method" research as a phenomenon and then validating the unity among them. Triangulation in Multi-Method to overcome the limitations of "mono methods" is also analyzed in this part of the study. In the conclusion of this study, the author has concluded that the Multi-Method approach is a worthwhile procedure for overcoming barriers in Mono-Method qualitative studies. It improves the validity of qualitative studies in management research work. The recommendations of this study propose that future research should concentrate on emerging trends in qualitative Multi-Method research. Also, since a Multi-Method technique to case centered research requires considerable time and resources in both financial, human and other specific talents on the researcher's side, a researcher skilled in mono-method research may not have the necessary abilities to perform Multi-Method investigations. Therefore, the study has recommended different areas a researcher needs to develop to become a successful researcher using Multi-Method research.

Keywords: Multi-Method Approach, Qualitative Study, Futures Studies, Triangulation, Qualitative Sampling

**ASSESSING PROJECT MANAGEMENT PRACTICES AND CAPACITIES IN
STRATEGIC IMPLEMENTATION OF PUBLIC UNIVERSITIES IN SRI LANKA: A
QUALITATIVE STUDY**

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ABSTRACT

Previous research has shown that project management approaches and tools play an important role in project success in the public sector, demonstrating the importance of government initiatives that emphasise transparency, accountability, efficient and effective use of public resources, policy and change implementation, and, most importantly, public trust. A gap in public sector project applications and practises has been identified in the Sri Lankan setting. The main aim of this study is to examine project management practises and skills in Sri Lankan public institutions in terms of strategy implementation. Purposive sampling was employed to collect data in this research. The study collected data from 10 Sri Lankan institutions using in-depth qualitative research methods. A theme analysis was performed as part of the process of identifying the results. The results indicate that strategic management reflects an institution's ultimate objective, whereas project management assists it in getting there. As a consequence, strategy and project objectives should be connected; strategic and project-based assessments are not carried out on a regular basis. Almost all of the respondents from the participating institutions believed that project management was mainly concerned with infrastructure development, rather than day-to-day university operations. Staff development is often addressed when curricula are changed, although it is seldom accomplished effectively. Periodic assessments are mainly carried out for administrative reasons. Decentralizing decision-making power and recruiting qualified people are also significant challenges in public organisations. Progress reviews are seldom conducted on a regular basis, and when they are, they are held to complete checklists rather than to discuss or plan the output strategically. Administrative tools include project components such as Gant charts, project Management software, and work breakdown structures, which are not often utilised in Sri Lankan public institutions. Aligning strategy and project management may help public universities overcome implementation challenges.

Key words: Project Management, Strategy, Public Universities, Strategic Implementation

BARRIERS TO INNOVATION: AN EXPLORATORY STUDY OF PUBLIC SECTOR ORGANISATIONS IN SRI LANKA

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ABSTRACT

The status of innovation in both public and private sector organisations in Sri Lanka at the moment is generally considered weak even by the standards of a developing country. Considering the importance of public sector innovation, the understanding of what inhibit innovation become important in both practical and research perspective. Thus, the purpose of this research was to examine barriers to innovation in the Sri Lankan public service. A qualitative approach was used to understand the perceptions of SLAS officers related to the barriers of public sector innovation. Data has been collected from a sample of 15 SLAS officers through purposive sampling technique. Thematic analysis was conducted to review and evaluate the responses collected through in-depth interview method. The Thematic Map was developed based on the analysis of the data. This research addressed public sector innovation from the top management perspective, reflecting upon their experience. Barriers to public sector innovation were identified in terms of internal organizational factors (lack of customer orientation, bureaucratic risk averse organizational culture, internal politics, lack of resources (human and finance), absence of visionary leaders and frequent leadership changes, lack of incentives , size and complexity) and external factors (lack of competition, public resistance, political influences, strict rules and regulations, budgetary constraints, lack of connectedness).

Awareness of these barriers can provide important insights for the leaders of public sector organisations on how they can enhance their ability to innovate in order to respond to changing expectations of citizens effectively and efficiently.

Key Words: Barriers to innovation, Public sector innovation, Innovation

INTRODUCTION

Public sector organisations face the challenge of offering continuously improved or completely new services to the general public. They need innovation to respond to changing public needs and expectations, boost public confidence, transform their operations, confront the challenges facing its future society and to raise the quality and productivity levels of services. It is a learning process in which governments attempt to meet specific societal challenges which can be solved by developing new management approaches, technologies, organisational structures, services and new governance processes and policy concepts.

This research was inspired by the need to explore the barriers that hinder innovation in the context of public sector organisations in Sri Lanka. Sri Lanka, being a developing country, faces a myriad of issues such as high level of poverty, high unemployment rate, poor living standards and poor infrastructure facilities which need to be addressed innovatively (Tigabu et al., 2015). Given that Sri Lanka's public sector organisations are

mandated to provide services at free or at a subsidised rate to Sri Lankans, it is essential to assess and promote its innovative capabilities to solve the aforementioned problems (Agolla & Van Lill, 2016). In order to develop innovative capabilities for the public sector, it is important to understand barriers to innovation in the public sector organisations.

The previous literature indicates that the most common type of organizational barriers relates to the management of the innovation process activities including lack of training (Abuya et al., 2012), additional workload for managers and employees (Piening, 2011), top down managerial thinking (Bernardes et al. 2012), unclear goal, lack of intra organizational coordination (Bloch & Bugge, 2013), inadequate incentives and lack of leadership (Brown, 2010). Size and complexity is another barrier identified. In developing countries, factors such as inefficiency, undue influence and high levels of corruption also hamper innovation. Furthermore, resistance from staff and managers, conflicts and absence or inadequate support (Plotnik, 2015; Ezzamel et al. 2014), lack of resources in terms of time, money, and infrastructure facilities, inadequate state funding, shortage of competent staff and limited advanced information technology could hamper the innovation at public sector organisations (Weber et al, 2014). Brown and Osborne (2013) indicated that inappropriate organizational culture as well as structure hamper the innovation. Lack of learning environment, risk averse behavior, slow bureaucracy and hierarchy were identified as obstacles within the innovation process (Susha & Gronlund, 2014).

While there is a growing body of literature on innovative practices of the public sector organisations in Sri Lanka, there is still limited knowledge of which factors hinder innovation and what tools

and strategies that public sector organisations can use to overcome these barriers to strengthen their capacity to innovate. Therefore, the main research question to be answered in this research is:

What are the specific organisational barriers to innovation in Sri Lankan public sector innovation?

METHODOLOGY

A qualitative and interpretive approach was applied with the aim of having an in-depth understanding of the barriers to innovation. Semi-structured interviews were conducted via the Zoom platform to obtain the perspectives of participants on the barriers for innovation. The interviews were conducted via the Zoom platform due to the Covid-19 safety guidelines imposed by the selected organisations. The interviews took place from February 2021 to May 2021. Fifteen (15) SLAS officers were selected representing special, grade I, II and III for the interviews. The name of the organisations and the name of the participants are not disclosed due to confidentiality and anonymity. The consent of the officers was taken to record the discussion and all the participants agreed to allow recording of the whole interview. In addition to individual interviews one focus group discussion was held with eight members of the sample representing all levels. Each interview lasted for approximately forty five (45) minutes and the focus group interviews lasted for one and half hour. After conducting 15 interviews, based on the purposeful sampling technique data repetition was observed. The transcripts of the interviews were sent to the participants for review to reduce the interpretation errors. All transcripts were read several times to reach familiarity with the content of the transcript before performing data analysis and the Thematic analysis method (Braun &

Clarke,2006,2019) was used to analyse the data . While performing thematic analysis, literature review served as a loosely guiding support to identify codes and themes(Erikson & Kovalainen,2015).Further attention was given to the purpose of the research and specific research objective. Based on the findings of the thematic analysis, a thematic map and thematic Tables were developed.

RESULTS

The findings of this study represents a thematically – organised synthesis of the perceptions of 15 participants on barriers for innovativeness of the public sector organisations in Sri Lanka. The barriers to innovation were categorized into two main groups as shown in Table 1

Table 1: Barriers to Innovation-Themes and Codes

Main Topic	Main Themes	Sub-themes (categories)	Codes
Barriers to Innovation in public sector Organisations	Internal Barriers	Customer orientation	Customer focus
		Organisational culture	Learning Orientation
			Risk Averse
			Bureaucratic
			Unionized
			Staff resistance
		Internal Politics	Politics
		Lack of Resources	Creative people
			Finance
			Technology
		Leadership	Visionary
			Leadership change
			Conservative
	Size & complexity	Large	
		Complex	
	Lack of incentives	Poor Salary	
		No other incentives	
	External Barriers	Lack of competition	No Competition /lack of competition
		Public resistance	Oppositions
		Political influence	Political Changes
			Political appointments
		Lack of Connectedness	Other related org.
			R & D
Rules and regulations		Lack of policies to promote innovations	
		Strick rules	
Budgetary constrains	Short-term budgets		
	Planning horizon		

Source: Author Compiled

DISCUSSION

This study revealed two main groups of barriers as internal and external which have prevented these organizations to introduce innovation successfully. Seven sub themes were identified as internal barriers to innovation including lack of customer orientation, organizational culture, internal politics, lack of resources, absence of visionary leaders, size and complexity and lack of incentives to promote innovation. Further six sub themes were identified as external barriers to innovation including lack of competition, public resistance, political influence, lack of connectedness, rules and regulations and budgetary constraints. Organizational culture was mentioned as a significant internal barrier within the innovation literature (Plotnikof 2015). Further, risk aversion, bureaucracy, seniority based hierarchy, lack of organisational learning, unionization were identified as the cultural characteristics which hinder the innovation of public sector organisations in Sri Lanka. A risk averse culture, was uncovered as a barrier to the innovation journey by many researchers (Termeer 2009; van Buuren & Loorbach 2009). Similar to the Sri Lankan situation, Hislop et al (2000) argues that innovation is necessarily political and political behavior has become requirement for successful innovation efforts. Parker et al (1995) found that higher level of politics tended to be less supportive for innovation. Another barrier which was found was lack of resources in terms of skills, knowledge and expertise, finance and advanced technology and IT infrastructure facilities. These factors make the innovation process within public sector organisations more difficult. According to Levine and Wilson (2013) and Weber et al. (2014) a lack of national and state funding, shortage of staff and limited information technology infrastructure could hamper the innovation in public sector organisations.

CONCLUSION

The research provided evidence that having visionary leadership and positive support from existing government and political parties, being customer (user) oriented, receiving sufficient resources to invest in new projects, absence of negative internal politics encourages and enhances innovations in the public sector organisations. It was evident that public sector workers need to take risks, and this requires management to develop a culture that supports innovation. Both intrinsic and extrinsic rewards for innovative ideas should be given to encourage employees to be innovative. Since lack of connectedness and shared understanding were identified as barriers to innovations, having a separate department to coordinate innovation activities would strengthen innovation efforts in these organisations. Building public awareness and having a continuous discussion with them as users or customers on innovation would reduce resistance. Moreover, the study highlights innovation policy constraints. From the findings, it was evident that the innovation policy of the country is weak and rigid and not well aligned with the requirements of the country, thus reducing the capacity of the public sector organisations to innovate. Role of innovation in the public sector as a main service provider has been underappreciated at the national level. Thus, the current study suggests user-friendly, industrial and service oriented innovation policies that are well aligned with development requirements of the country. Despite the valuable managerial and theoretical contributions, the research paper suffers from limitations because it was based on a limited number of public sector organisations and perceptions of 15 SLAS officers. Other researchers should consider the inclusion of a larger sample within Sri Lanka or in different developing countries to validate this study.

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THE RIGHT TO PROPERTY IN THE INDIAN CONSTITUTION: CONTEMPORARY CHALLENGES

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ABSTRACT

The right to property has been a very difficult and controversial concept but equally the most important factor upon which the foundations of every legal system is to be built. The right to property is as old as man himself. This is the basic human right provided by the nature or the God himself. It is the pre supposition of every legal system. The origin of the right to property is prior to even to the creation of the state. . The right to property in the Indian constitution has its earliest origin in section 23 Government of India Act, 1895 “Every Citizen shall enjoy right of property to its fullest extent, except where the law determines otherwise” This forms the basis of incorporating clause 1 of article 31. The Constitution of India as originally enacted contained specific provisions providing the Right to Property. The second part deals with the right to freedom to property Article 19(1) (f). The right to acquire, hold and dispose of property was provided to all citizens under Article 19 (1) (f). Article 31 of the Indian Constitution states that no person can be deprived of his property without the consent of a proper authority. Both of these articles were repealed by the 44th Amendment Act of the Indian Constitution. This amendment was challenged in several cases in the courts. The research objective is to find out whether the abolition of right to property was necessary or was it a political gambit.

Key Words: Constitution, Property, Right

INTRODUCTION

In the words of justice K.K.Mathew “The Right to life and property according to natural law theory, is supposition of every legal order. The legal order does not confer this right. It only protects these rights with power proper to law. Property, therefore is no arbitrary idea, as some people would imagine but is founded in man’s natural impulse to extend to his personality.” The right to property is considered as the greatest guarantee against the government tyranny as well as economic oppression, it is also the greatest source of feud and factionalism in the society. The socialists requires the whole property to be used in such a manner as to give the greatest common good. The Marxists regards the property an instrument of exploitation and oppression in the hands of bourgeoisie and therefore stand for total abolition of the right to private property. John Locke asserted the right to property was a natural right given by God. Similarly Aristotle, Blackstone, and T.H Green etc. advocated the property was the absolute right inherent in every person. On the other hand Jermy Bentham , J.S.Mill, Hobbes, Karl Marx scorned the idea of natural rights. They advocated maximum happiness of maximum number cannot be achieved by giving people right

to property. The Constitution of India as originally enacted contained specific provisions providing the Right to Property. Thus the preamble of Constitution do not prescribe an unrestricted right to property in the Constitution. The right to acquire, hold and dispose of property was provided to all citizens under Article 19 (1) (f). The freedom given was against state action only. The right was subject to article 19(5) which said that nothing in article 19(1) (f) shall affect the operation of any existing law in so far as it imposes or prevents state from making any law imposing, reasonable restrictions on the exercise of any rights conferred by the said sub clause either in the interest of the general public or for the protection of the interests or of partial of any schedule tribe. The Article 31 was the charter guaranteeing right to private property, subject to the provision of this article. It may be stated at the outset that Article 31 and the sub heading 'the right to property' have been omitted by the Constitution (44th Amendment) Act, 1978. The reason for omitting this right was that no fundamental right has given so much litigation between the government and the citizens as the right enshrined in Article 31 of the Indian Constitution. In this paper the researcher try to find out whether the abolition of right to property was necessary or was it a political gambit in this background of laws in India.

METHODOLOGY

This paper adopts the combination of analytical and descriptive methods to continue the research. This research primary based on literature, Constitutional Provisions, national legislations, scholarly writings. This is the very essence of the process of requiring new knowledge from different jurisdiction.

CONSTITUTIONAL BACKGROUND OF THE RIGHT TO PROPERTY

Article 19 (1) (f) of Indian Constitution states that every person has the right to hold and dispose of their personal property as they see fit and as long as it's within the concurrent laws. Article 31 of Indian Constitution states that no person can be deprived of his property without the consent of a proper authority. Both of these 19 and 31 articles were repealed by the 44th Amendment Act of the Indian Constitution. However, after the repeal of those articles, property rights are considered as a legal right, not a fundamental right. Article 31 of the Constitution of India gives the Indian people the right to retain and dispose of their property as they wish. By the 1st Amendment to the Constitution of 1951, Parliament added Article 31a to the Constitution of India. Thus, the government can seize the property of the people and in doing so does not violate the fundamental rights enshrined in Articles 14 and 19 of the Constitution of India. Article 31b states that the provisions of Article 31a cannot be challenged by any court in India on the basis that they might violate the fundamental rights mentioned in Articles 14, 19 and 31 of Indian Constitution.

RESULTS AND FINDINGS

Main finding of this research is abolish the property rights is not suitable to current needs of the Indian society. And currently there are no sufficient calculation method for decide real compensation in process of acquiring lands from people.

CONCLUSION

The property rights of India is now considered a legal and Constitutional right

provided under Article 300A of the Constitution. Although the land is the most valuable asset in India. The government has the right to acquire land for the public at a price not equal to the market price. However, under that constitutional provision, it is a hidden right to sue the aggrieved party in the event of incompetent compensation. Accordingly, the government and the relevant authority must ensure that adequate compensation is paid to landowners when the government needs land and when land is acquired. Any time government can acquire the property from people. The power of the government created a large number of disputes and is responsible for the property related matters in the several courts in India. Therefore still suspicion of the right to property of people in India.

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TOWARDS EQUITABLE SHARING OF FISHING HARVEST IN PLAK-BAY REGION; STATE RESPONSIBILITY ON ASSURING VIABLE SOLUTIONS TO FISHING ISSUES

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ABSTRACT

The fisheries sector of Sri Lanka contributes largely on the economic development of the country. Due to various reasons the fisheries sector has severely affected resulting huge economic loss to the gross domestic product and annual income of the country. illegal, unreported and unregulated fishing activities in Palk-bay region is a significant cause among others factors. Both Sri Lanka and India have mutually agreed to binding on 1974 and 1976 agreements on boundary lines and equitable sharing of marine resources. In several occasions both parties have continually violated these agreements due to various socio-economic factors and conflicts aroused between fishermen of both countries in several instances. Both states have failed to established concrete solution for the issue and constantly ignoring their states responsibility due to various socio politic reasons. The objective of this paper is to analyze the barriers on equitable sharing of fishing harvest in Plak-Bay region due to the lacunas of existing legal frame work and provide comprehensive modifications to that. Qualitative method of research has been adopted to develop this paper. It mainly relies on a literature survey, incorporating both primary and secondary sources. The research examines the current legal framework including bi lateral agreements reached by both countries regarding maritime fishing in

Palk-Bay region Therefore, the 1974 and 1976 agreements need to be revisited and provisions relating to effective conflict resolution mechanism need to be incorporated into those agreements. Issues related to fishing activities specially in Palk-Bay region effectively address through continue and regularized meetings between both states

Key words-Fishing issues, Bi lateral agreements, States responsibilities

INTRODUCTION

The fisheries sector of Sri Lanka contributes largely on the economic development of the country. As per the fisheries statistics 2020 marine fishing contributes 1.1 for the gross domestic products (GDP) in 2019. The fisheries sector of Sri Lanka mainly consists of coastal, offshore and deep sea and inland and aquaculture and provides livelihood for over one million people. However recently the fisheries sector was severely affected by various reasons. It includes illegal, unreported and unregulated fishing in Palk-bay region and has significantly impact on the fishing economy of the country. According to the Ministry of Fisheries and Aquatic Resources, fish production in 2019 declined by four per cent and it remains as a major challenge for sustained economic growth of the country. The key objective of this paper is

to analyze barriers on equitable sharing of fish harvest for both countries by looking at the existing legal framework and to propose a viable resolution in order to ensure sustainable fishing in the Palk-Bay region. Both States have a mutually agreed legally binding agreements reached in 1974 and 1976 regarding sustainable fishing industry. There is a well-defined boundary of territorial water for both parties. In several occasions both parties have constantly violated these agreements due to various socio-economic factors and conflicts aroused between fishermen of both countries regarding illegal, unreported and unregulated fishing activities over the years. The ongoing violations came up at a top-level meeting between various parties of two states state parties over the past several years. However, continued failures of both states to address the historical issues in palk- bay region fishing highlights the structural, states and policy interventions that could be addressed illegal, unreported and unregulated fishing with a long-term view.

METHODOLOGY

Qualitative method of research has been adopted to develop this paper. It mainly relies on a literature survey, incorporating both primary and secondary sources. The research examines the current legal framework including bi lateral agreements reached by both countries regarding maritime fishing in Palk-Bay region, International conventions on fishing, constitutional and legislative provisions of Sri Lanka and India, journal articles, text books. Data collection is based on structured interview and analysis of agreements, statutes and regulations.

RESULTS

The analysis indicates that it demands more planned and structured efforts by

both states and further modifications in the existing legal framework by incorporating legal provisions and mutual corporations of both countries would remedy the situation.

DISCUSSION

The maritime agreements of 1974 and 1976 demarcating the International Maritime Boundary Line have played a vital role in fishing issues. Ignoring of these bi lateral agreements posed many socio-economic as well as political issues and challenges. Major challenges that need to be addressed by both states include the establishing of safe, secure and sustainable fishing activities, discouraging of destructive fishing methods. Obligations lies with the states to protect the livelihoods of fishermen and urgent need to address all issues of illegal, unreported and unregulated fishing activities. Natural resources are subject to struggles for access amongst competing users. Major bi lateral agreements o established the exclusive economic zones and rights over the living and non- living resources of their respective zones. Both countries have agreed not to engaged in fishing in the historic waters, the territorial sea and the exclusive economic zone of each country. Illegal fishing in Palk Bay region waters include fishing without a license, fishing with a fake license, fishing with a wrong ship and fishing in the wrong waters. Both Sri Lankan and Indian fisherman have been involved in these illegal fishing activities. Therefore, it needs to established an effective mechanism to monitor and control activities of fishing vessels and, ensure transparent and timely decision making, corporate to prevent disputes and resolves them in timely, peacefully and corporate manner are essential. However, the 1974 and 1976 agreements have major lacunas in implementation such as provisions relating to effective conflict resolution

mechanism need to be incorporated into those agreements.

And also, continued and regularized meeting between both states is very much essential. A joint Working Group meeting held in 2020 after three years and issues related to fishermen and fishing boats were on the agenda of these discussions. Issues related to fishing activities specially in Palk-Bay region effectively address through continue and regularized meetings between both states. Apart from that fish farming is unusual for most of the fishermen and lack of using and exchanging technologies relating to fishing industry as well as the lack of solid and comprehensive provisions relating to complete ban on bottom trawling which is using large nets with heavy weights are crucial in this regard.

Government of Sri Lanka has enacted the Fisheries (Regulation of Foreign Boats) Act No 59 of 1979 with the objectives of regulate, control and manage fishing and related activities by foreign boats in Sri Lankan waters. Apart from that Sri Lanka Coast Guard Act provides certain mechanism regarding prevention of illegal fishing by foreign vessels. Section 4 of the Act states that the Sri Lanka Coast Guard is under a statutory obligation to prevent illegal fishing in the coastal areas in Sri Lanka. There are major lacunas in the existing arrangements in certain areas i; e promotion and protecting of economic rights of fishing community in both countries and state obligation under international agreements.

Conclusion

Therefore, the 1974 and 1976 agreements need to be revisited and

provisions relating to effective conflict resolution mechanism need to be incorporated into those agreements. Issues related to fishing activities specially in Palk-Bay region effectively address through continue and regularized meetings between both states therefore those Joint Working Group meeting should be on the top-level agendas. Apart from that fish farming should be encouraged and provisions should be incorporated to completely ban on bottom trawling. Therefore, it is vital to build the long-lasting solutions and dissemination and empower relevant personnel with knowledge, expertise and technology required to overcome such challenges. The necessity, urgency and complexity of required policy adjustments to ensure the sustainable and equitable fishing in both countries.

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MULTIDISCIPLINARY COOPERATION ISSUES DURING ORGANISATIONAL CRISES

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ABSTRACT

Crises, as sudden unexpected events, that shall be handled in few hours after the occurrence. The paper presents some empirical results, based on qualitative research done in March 2021., at five Romanian multinational manufacturing company, located in East of Europe. The research tries to supply (pro/ con) arguments for the use of multidisciplinary crisis management teams inside organizations. Our results show, that in the studied multinational organizations managers acknowledged that communication experts, financial specialist should be in crisis management, a multidisciplinary cooperation creates new knowledge during crises. In the case of real scenarios, it seems, managers will try to cope with crises mostly by requesting solutions from upper the structures of the organization, and less involving people from their staff. The studied organizations avoid to use social media and their ICT tools during unexpected event, if these were success stories.

Keywords: organizational crises, crisis management, organizations, multidisciplinary teams

INTRODUCTION

Organizational crises, as sudden unexpected major events, require rapidly mobilizing community of practice or informal professional network. Due to the demanded short reaction time, there is a

pressure on all persons involved in handling the situation. The outcome of the crises often depends on the ability of the organization to adjust its behaviour to this unpredicted situation. In our digital era crises are managed through ad hoc created complex networks, in which we may find a sudden mixture of human operators, machines and software. Typically, crises are not solved by a lonesome hero, with a pen/gun in his hand like in movies, but more likely by a heterogeneous crew using the latest achievements in information and communication technology (ICT). Nowadays, the first response to the stakeholders is usually carried through social media networks and the organization's website, part of the organization's ICT system. Social media offers the possibility to communicate with stakeholders in multiple channels, in same time, including the professional accounts of the crisis management teams. Our interconnected era offers new tools and challenges for crisis communication professionals. These new technologies (blogs, wikis, social tagging and others) are growing at an incredible pace, and managers hope that will help improve important organizational processes. (Treem & Leonardi, 2012). One of the most cited authors Timothy Coombs, advises us to "use all of the available communication channels including the Internet, Intranet, and mass notification systems." (Coombs, 2010). In a later study, Coombs and others (for example,

Puthentara, 2012) suggests to use well-informed employees as an additional channel of communication for reaching stakeholders. There is an increasingly growing literature of social-mediated crisis communication. For example, the SCCT (Situational Crisis Communication Theory), a reference theory developed by Coombs back in 2007 (Coombs, 2007), is now upgraded by many researchers to SMCC (Social-Mediated Crisis Communication Model) (Roshan, M., Warren, M., & Carr, R. 2016) According to these approaches the crisis response strategies should be updated accordingly. To use well-informed employees as an additional channel of communication has multiple advantages, but also drawbacks, as well.

The aim of the paper is to present some of the results of a pilot survey how a group of professionals with multidisciplinary background may handle crisis situations in efficient manner. Burns and Stalker claimed “a mechanistic management system is appropriate to stable conditions” whereas an “organismic form is appropriate to changing conditions, which give rise constantly to fresh problems and unforeseen requirements for action which cannot be broken down or distributed automatically arising from the functional roles defined with a hierarchic structure.” (Burns & Stalker, 1961) Today, the ability to organize less hierarchical structures has considerably increased due to the general availability of high-tech equipment and the never, ever before experienced connectivity to the internal and external environment of the organization. Step by step, the strengths of the hierarchy are replaced by the power of networks. In contrast to traditional organizational communication models, in which the literature advocates autocratic, strictly top-level crisis management, we search for solutions with a less hierarchy. The complexity of 21st-century problems

wouldn't be solved with a 20th-century approach.

Based on these trends, our research tries to figure out, how the less ierahic structures can improve reaction time during crises, and how the multidisciplinary background of the involved staff leads to a better result. As members of adaptive system, during crisis situations employees are creating meaning out of noise.

METHODOLOGY

The paper presents some empirical results, based on qualitative research done in March 2021., at five Romanian manufacturing companies, located in East of Europe. All organizations are from automotive and pharmaceutical industry and are branches of a large multinational company. Actually, the research is part of a pilot research prepaing larger quantitative research intended to take place in September- December 2021. At the same time, the pilot research can be considered as part of a longitudinal research, being a subsequent research of a research done in 2019 at the same organizations and having similar objectives. In 2020, we shared our findings to the managers of these highly standardised industries, based on the data obtained from a sample of over 150 respondents. In 2021, one of the goal was to evaluate if our recommandations had some effects. We are confident that in the case of multinational companies some local results and recommandations might not influence the working procedures and processes developed for the entire group/industry, but at the same time we assumed, that our last year report had some influence in the local crisis proactive behaviour of the studied organizations. Based on the findings, we proposed a crisis management architecture, which tries to merge some perspectives from stakeholder management, public relations, human-machine cooperation and system

engineering, while focusing on data validation and data processing issues during crisis.

The main research question is our 2021 qualitative survey was related how multidisciplinary teammembers are involved in crisis management. We made an interview based investigation, interviewing 10 top managers of the studied organizations. During the interviews we had skeleton consisted of 12 questions, but we left a time-frame for free discussions. The chosen way of investigation leaves space for collecting important data about the research topic, but at the same time maintains the focus on the targeted issues. We consider this pilot research, as it is, interesting and relevant to the theory and practice of crisis communication and management, by offering (pro/ con) arguments to use multidisciplinary crisis management teams inside organizations.

RESULT. DISCUSSION

Being constrained by the length of this extended abstract we will not able to present in detail the answers for the 12 fixed questions, neither we will be able to present the findings of our survey at the level of each organization. We will just summarize some of the conclusion of the conducted interviews.

The managers, four out of the five organizations, affirmed that they made some changes/proposals after receiving the conclusions of our previous research, two persons admitted, they just discussed with their colleagues the possibility to use a decentralized crisis management approach. According to the discussions and answers to the questions during the interview, most of the managers realized that communication experts, financial specialist should be more involved in risk management and crisis preparation activities. A multidisciplinary cooperation creates a network of knowledge. In spite of

the fact that during crises the usual knowledge creation and sharing mechanisms are damaged, crises generate new tacit knowledge. In most of the studied organizations, workers are increasingly being asked to “think on their feet”; managers encourage lower level managers to empower responsibilities their staff and increase their readiness to take action under unpredictable situations. Key staff members must be trained to digest and analyse incoming data in very little time. They should let alone to retrieve, access, and apply relevant information during crises. Theoretically, each of the managers argued for multidisciplinary crisis teams, but in a deeper analysis indicates, that in practice there is much less room to create multidisciplinary staffs during crises, and the involvement of local professionals is limited.

The managers of the studied organizations were asked if they had to face any crisis situation due to the Covid-19 pandemic. In spite the fact, that the Covid-19 pandemic itself cannot be considered a crisis situation (in our approach crisis is something that appears suddenly, has a major impact and must be handled in few hours, days), the subjects reported few situations that they had to handle in order to avoid crisis situations. According to their statement, all these situations were handled by the board, no special taskforce or traditional war room was necessary. The studied organizations, it seems, succeed to maintain the existing rigid chain of command, their hierarchical crutches worked and ranks were permanently clear. In addressing these questions we assumed, that Covid-19 pandemic might knocked down their basic routine, and they might be experiencing situations which require abductive reasoning. This assumption was not confirmed; the pandemic did not put the studied organizations in crisis situations.

Each of the managers confirmed, when the organization face extremely difficult situations, they crisis management consists of ad hoc sessions in which heterogeneous teams try to find the best solutions. In the most of the cases they try follow the existing rules, and if this is not possible, they appeal to the mother organization (being part of a multinational concern). The managers and the board of directors used experts from different fields

in order to handle the unexpected situation. In our survey we first we asked the subjects to indicate the structure of the crisis management team within a hypothetical crisis. The answers of the interviewees are presented in Table 1. Later, during the discussions we asked the same persons to remember crisis-like situations, and with whom they handled it. The results are presented in table 2.

Table 1 Crises cases and the hypothetical crew structure

	Crises type	Crew structure						
		Fin.	Tech.	PR	Sales	HR	Legal	Other
1	natural disasters	10	10	5	2	4	8	7
2	technological crises	10	10	2	3	3	-	7
3	biological crises	10	10	7	6	3	2	5
4	confrontation	10	8	1	4	8	7	9
5	malevolence	10	7	7	5	6	8	1
6	management failure	10	5	4	2	3	5	8
7	financial crises	10	10	-	7	2	5	7
	Total occurrence:	70	60	26	29	29	35	44

In table 1 we can see, that the financial and technical experts are hypothetically invited to participate in a crisis management team. Being industrial organizations it is obvoious to have

technical experts in the team. Surprisingly, less than half of the answers was not indicating the need for Public Relations, sales and human resource management professionals.

Table 2 Real crises-like situations and the crew structure

	Crises type	Nr. of cases	Crew structure						
			Fin.	Tech.	PR	Sales	HR	Legal	Other
1	natural disasters	1		1	1	1	1	1	1
2	technological crises	7	5	7	1	2	3	5	3
3	biological crises	10	7	8	5	2	10	3	5
4	confrontation	6	4	3	2		6	6	2
5	malevolence	5	4	3	5	5	2	5	1
6	management failure	3	2	2	4	2	3	3	2
7	financial crises	1	1	1		1		1	
	Total occurrence:	33	23	25	18	13	25	24	14

Tabel 2 indicates the crew structure in real “crises-like” situations. We use this term because most of the managers stated that their organisation was never in crisis situation. Only two of them mentioned, that they had to face something like a crisis, but they are not allowed/ they don’t want to talk about it, and anyway it was a long time ago. Still, after insisting, and after weakening the crisis term into a “hard/ difficult situation” they remembered several cases. Each of them included the Covid-19 pademic into the biological crises category. We can see, in real scenarios the structure of the crisis management team differs from the hypothetical case presented in Table 1, legal and human resources experts are as well important members as the financial and tehcnical experts. Public realtions and Sales are considered more often to be part of the team comparatively to the hypothetical case. The above presented data shows the theoretical and real need for multidisciplinary team in crisis management, however, the data is not representative and due to its size cannot be used to draw general valid conclusions.

A group of questions were asked regarding some fears to avoid cooperation,

to build larger teams for crisis management situations and to find the drawbacks of multidisciplinary teams. At this point, the interviewed managers provided multiple answers, showing several fears and arguments against a less-hierarchical crisis management approach. The abundance of the arguments was a proof for us, that the managers of multinational organizations, will try to cope with the crises mostly by requesting solutions from upper the structures of the organization, and less involving people from their staff. It seems, due to the large variety of regulations and internal laws, and specific organizational culture, managers will a preference to report and wait, rather than act with a team and take responsibility. The multidisciplinary approach of the crisis management, it seems, is not always present at local level, the multidisciplinary solutions are expected to come from outside, from the upper levels. In figure 1 we present some of the fears that the subject revealed during the interview. The figure summarizes the most often used arguments during the discussion. We prepared check-list before to start the interviews, and later the list was upgraded.



Figure 1 Fears related to a decentralized crisis management

The same methodology was used to evaluate the reasons to avoid multidisciplinary teams in crises. In figure 2 we present the main arguments.

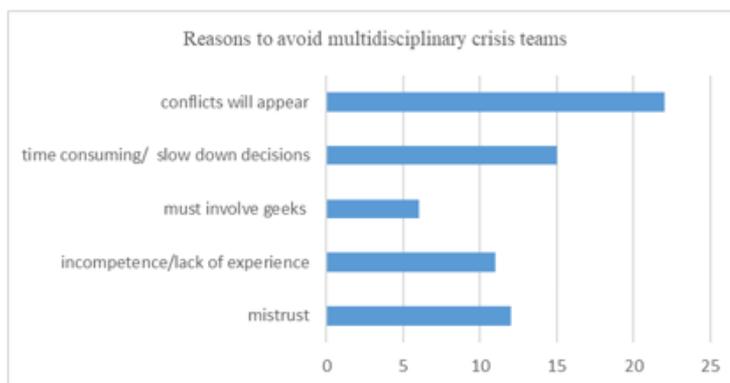


Figure 2 Reasons to avoid multidisciplinary crisis teams

In the survey we evaluated also if during the “hard/ difficult situation” they remembered the organization used social media and their ICT tools (for example their website, CRM or ERP software), and if they checked that some of the staff their own professional accounts (for example LinkedIn) to communicate about it. The result was devastating and simple. All the studied organizations avoided to share any of their difficulties through social media and did not use any of their ICT tools to solve it, even if it is a success story how they handled it. Only two managers declared, that they had some investigations related their staff, in fact probably none of the subjects checked if some of their staff mentioned about difficult internal situations it in any public channel. It seems, the professional accounts of the staff are somehow considered a private matter, managers have confidence in the strict regulations about the confidentiality, sensitive information management, there are no suspicions related to malevolence, misconduct or information leakage)

CONCLUSIONS

The paper presented some of the results of a pilot survey on managers from Eastern European multinational industrial organizations. According to the findings the involvement of a group of

professionals with multidisciplinary background to handle crisis situations in efficient manner is still a subject to debate. The ability to organize less hierarchical structures is yet limited by the existing regulations. Most of the managers acknowledged that communication experts, financial specialist should be more involved in risk management and crisis preparation activities. A multidisciplinary cooperation creates new knowledge during crises. Managers, theoretically encourage their staff and increase their readiness to take action under unpredictable situations. In the case of real scenarios, it seems, managers will try to cope with crises mostly by requesting solutions from upper the structures of the organization, and less involving people from their staff. The survey also revealed that during “hard/ difficult situations” the organizations did not use social media and their ICT tools, even if these were success stories. Also, there is high confidence in the staff in not disclosing sensitive data. The number of studied organizations not allows to draw general valid conclusions, we are aware that the proposed topic is wide, and the results may vary in function of multiple variables. Hopefully, we are at the beginning of the Covid-19 post-pandemic era. There many experiences gained during pandemic, the organizations certainly acquired specific knowledge,

hogy to cope with similar situations. There are lessons learned. One of the incomes of these difficult times might be the improvement of the preparedness to unforeseen events, a better and pro-active organizational behaviour in order to avoid crisis situations. Hopefully, this paper contributes by giving some insights for professionals and researchers, for further improvements in their work related the management of crises.

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EXPERIENTIAL ANALYSIS OF ELITE ATHLETES' SPORTS PERFORMANCES THROUGH MULTIDISCIPLINARY VARIABLES

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ABSTRACT

Sports is a kind of human exercises that is used to complete the results that require both physical strength and physical ability. Its temperament and association are serious, and it is generally considered as a game. All types of serious physical exercise, whether easy-going or tidy, are designed to use, maintain or improve physical abilities and capabilities, while bringing recreation and spiritual prosperity to members and observers. To achieve this research goal, the research sample is twenty (n=21) selected from different sports and games such as; Wushu, Basketball, Wrestling, Athletics, Judo, Volleyball, Table tennis, Weight lifting, Football, and Gymnastics athletes in Sri Lanka. Use multi-stage sampling techniques to select players. The age range of players is 18-35 (± 1) years old. The competition ability of different sports is selected as the dependent variable and evaluated by the judges' score (Experiential basis – Only national coaches were selected to analyze the playing abilities). Physiological variables taken were VO₂ max, Resting Heart Rate, Breath Hold Time. Physical fitness variables were Cardiorespiratory Endurance, Muscular Strength, Muscular Endurance, Speed, Agility, Flexibility and Leg Explosive Power. The anthropometric measurements used were Height, Weight, circumference and length of limbs, Girth of Chest, Waist, and Hip. Youth sport environment questionnaire was selected as to measure

Psychological variables. To investigate the relationship between performance ability and selected independent variables, a cluster analysis and Pearson correlation was calculated with SPSS 25 software. The findings of the research are, Significant correlations were obtained for several variables. The research concluded that there are significant correlations specially with the anthropometric variables and also other variables with the playing ability. This study concludes that there are impacts of Physiological, Physical Fitness, Anthropometric and psychological impact for playing ability of elite level players.

Key words: Sport performances, competition ability, Multidisciplinary

INTRODUCTION

Sports & Sports performances

Sports performance is a measure of sports participation. It is a complex mixture of biomechanical functions, emotional factors, and training techniques, skills, and the combination of body and mind. Performance in a sports environment has popular connotations representing the pursuit of excellence and fair competition. The goal of sports performance training is to improve a person's performance in the game and increase a person's potential for success in

selected sports or daily activities. Main plan takes into account the personality of each athlete while focusing on their short- and long-term fitness goals. Sports performances means increase and improve speed, lateral movement, speed, strength, agility and endurance, while potentially reducing the risk of injury.

An athlete measures his or her performance as progress towards excellence or achievement. The sports world generally believes that athletes interested in performance tend to be competitive or elite; Interested in simple participation, such as fitness or weight control and other broader purposes, usually leisure athletes who have not set specific performance goals. In activities where the results can be measured and defined, such as competitions, jumping, or objects to be thrown, the end result of the movement is quantifiable.

Physiological Variables

Physiological characteristics refer to human body functions. The same as the body’s ability to increase certain physical functions, such as maximum oxygen uptake, BHP (breath-holding time), RHR (resting heart rate)

Physical Fitness Variables

Physical fitness is a condition of health and prosperity. It is the ability to perform sports, occupations and daily exercises without being overly fatigued and having enough energy to enjoy a relaxing time. (Caspersen, Powell et al. 1985) Health can

be achieved through proper nutrition, physical activity and adequate rest. The two types of physical stamina are health-related physical stamina and skill-related physical stamina. In this study, cardiorespiratory endurance, muscular endurance, muscle strength, flexibility, speed, agility, and leg power were used as physical fitness variables.

Anthropometric Measurements

It is an advancement in an organized estimation method, which quantitatively expresses the elements of the human body and skeletal framework. It is a habit of organic anthropometry, perhaps a basic instrument. Anthropometry includes deliberate estimation of the physical characteristics of the human body, mainly the measurement of body size and shape. We can estimate the height, weight, circumference, length, and skin coverage of the human body as anthropometric estimates. We can use estimating tape measure, measuring ruler, distance meter, skinfold caliper as an estimation tool. Anthropometric estimates have also been used in epidemiology and medical humanities. The model determines the link between various body estimates and clinical results. The vast majority of researchers use anthropometric factors for exploratory work. It can be used well for diet assessment, clinical treatment, modern planning and clothing structure.

Anthropometric variables that used are,

Types of Tests	Independent variable	No of Test
Body mass	Height	02
	Weight	
Girth measurements	Wrist	05
	Chest	
	Thigh	
	Calves	
Length measurements	Ankle	04
	Arm	
	Hand	
	Leg	
Circumferences measurements	Foot	04
	Upper arm	
	Forearm	
	Waist	
	Hip	
Total tests of Anthropometric		15

Objectives of the Study

Major Objective

Analysis of elite athletes' sports performances through multidisciplinary variables

Minor Objectives

□ Analyzed the physiological, Anthropometric and physical fitness variables

□ Identify the talents of elite players

□ Identify the playing ability of elite players

Purpose of the study

To establish physiological profile (03 items), physical fitness profile (06 items), anthropometric profile (16 items) and

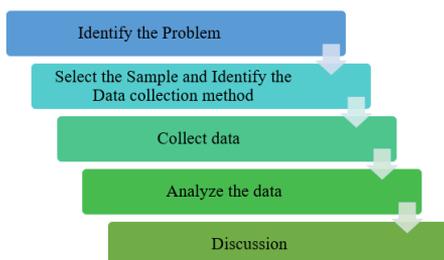
Psychological profile of database for elite level players (Age between 18-35 ± 1) and the different playing skills of games.

Hypothesis of the Study

Null Hypothesis (H0): There would not be a significant relationship between playing ability & selected physiological, physical fitness, anthropometric and psychological variables of elite athletes.

Alternative Hypothesis (H1): There would be a significant relationship between playing ability & selected physiological, physical fitness, anthropometric and psychological variables of elite athletes.

METHODOLOGY AND MATERIALS



Variables

Independent Variables: Physiological, Physical fitness, Anthropometric measurements and psychological analysis of elite athletes in Sri Lanka

Dependent Variables: Playing Ability of elite athletes

conducted by Willcox, A. (2011) has also conducted a similar research.

Correlation analysis

Physiological variables of elite athletes

Physiological variables are affecting the six playing abilities. The Pearson correlation value is significant for the correlation of resting heart rate with footwork playing ability.

RESULTS AND DISCUSION

Cluster analysis

According to cluster analysis, physiological and physical fitness variables can be mainly divided into 4 clusters for passing, attacking and defending but for footwork the best number of clustered were 3. A study

A study conducted in 2018 mentions that there is no association between resting heart rate and technical performance (Mullender, C., 2018). This can be considered as a contradiction for the finding of this study.

Another study that investigated the influence of a six-week lateral movement training program on selected physiological

variables in players concluded that the program was beneficial to elite athletes at any level of fitness and participation which improved or maintained the selected variables. Variables included were: Calf and thigh girth measurements, mass, body fat percentage, lateral agility, lateral flexibility, dynamic balance, heart rate and isokinetic concentric and eccentric quadriceps, and hamstring, abductor and adductor muscle strength (Marais, R., 2000).

The standing height, weight, wrist girth, thigh girth, calf girth, hip girth, speed and

agility are highly correlated with playing ability of All India inter university Women Players however the playing ability are not significantly correlated with arm length, leg length, grip strength and abdominal strength of All India inter university Women Players (Janagi, A., Sabirabi, A. and Singh, Y.W.B., 2020)

This study also proves that physiological, physical fitness, anthropometric and psychological variables are affecting the playing ability of elite level athletes in Sri Lanka. Results were;

Descriptive Statistics

	Mean	Std. Deviation	N
VO2 Max	46.25	5.190	20
RHR	71.05	2.114	20
Breath Hold Time	12.50	2.164	20
Cardio respiratory endurance	1180.90	237.848	20
Muscular strength	10.10	1.889	20
Muscular Endurance	20.35	2.581	20
Speed	5.8370	.45350	20
Agility	19.2355	1.43939	20
Flexibility	12.50	2.544	20
Leg explosive power	27.50	6.460	20
Footwork playing ability	6.85	1.226	20

Descriptive Statistics

	Mean	Std. Deviation	N
Height	165.00	6.936	20
Weight	63.50	11.076	20
Wrist Girth	16.25	1.070	20
Chest Girth	94.95	2.012	20
Thigh Girth	57.45	5.772	20
Calves Girth	36.75	2.673	20
Ankle Girth	22.00	1.622	20
Arm length	55.80	3.518	20
Hand length	18.50	.827	20
Leg length	89.65	2.739	20
Foot length	19.65	1.565	20
Upper Arm Circumference	29.45	2.089	20
Fore Arm Circumference	26.10	1.518	20
Waist Circumference	81.60	8.574	20
Hip Circumference	88.15	10.143	20
Footwork playing ability	6.85	1.226	20

Correlations

	VO2 Max	RHR	Breath Hold Time	Cardio respiratory endurance	Muscular strength	Muscular Endurance	Speed	Agility	Flexibility	Leg explosive power	Footwork playing ability	
VO2 Max	1											
RHR	-.079	1										
Breath Hold Time	-.518*	.089	1									
Cardio respiratory endurance	-.059	.067	.000	1								
Muscular strength	-.442	.025	.002	-.016	1							
Muscular Endurance	-.384	.089	.042	-.133	.252	1						
Speed	-.122	.089	.005	-.123	-.156	.056	1					
Agility	-.170	.089	.005	-.123	-.156	.056	.111	1				
Flexibility	-.170	.089	.005	-.123	-.156	.056	.111	.111	1			
Leg explosive power	-.283	.081*	.248	.320	.007	.000	.242	-.288	.025	.083	1	
Footwork playing ability	-.088	.084	.262	.191	.077	.025	.146	.201	.594	.271	.201	1

* Correlation is significant at the 0.05 level (2-tailed).

* Correlation is significant at the 0.01 level (2-tailed).

Correlations

	Height	Weight	Wrist Girth	Chest Girth	Thigh Girth	Calves Girth	Ankle Girth	Arm length	Hand length	Leg length	Foot length	Upper Arm Circumference	Fore Arm Circumference	Waist Circumference	Hip Circumference	Footwork playing ability
Height	1															
Weight	.627	1														
Wrist Girth	.627	.627	1													
Chest Girth	.627	.627	.627	1												
Thigh Girth	.627	.627	.627	.627	1											
Calves Girth	.627	.627	.627	.627	.627	1										
Ankle Girth	.627	.627	.627	.627	.627	.627	1									
Arm length	.627	.627	.627	.627	.627	.627	.627	1								
Hand length	.627	.627	.627	.627	.627	.627	.627	.627	1							
Leg length	.627	.627	.627	.627	.627	.627	.627	.627	.627	1						
Foot length	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	1					
Upper Arm Circumference	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	1				
Fore Arm Circumference	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	1			
Waist Circumference	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	1		
Hip Circumference	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	1	
Footwork playing ability	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	.627	1

* Correlation is significant at the 0.05 level (2-tailed).

* Correlation is significant at the 0.01 level (2-tailed).

CONCLUSION AND RECOMMENDATION

As a summary, the most dominant variables to increase performance of a player is, analyzing the physiological variables would be Resting Heart Rate as it is highly correlated with footwork. When it comes to physical fitness, the most prominent way can be analyzing the Muscular endurance and Speed which is highly correlated with footwork and most playing abilities respectively. Height, weight, thigh girth and calves circumference are considered as important variables as they are highly correlated with independent variables. This result can be used to choose players by analyzing relevant variables.

These findings may help to give a comprehensive insight into the dynamicity of performance qualities in every sports, which can be used to inform talent identification, increase sports performances in the sports.

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A STUDY ON HUMAN SECURITY VIOLATIONS IN THE EVENT OF CLIMATE-DRIVEN WATER SCARCITY AND ITS ROLE IN INCENTIVISING CONFLICTS AMONG FARMERS IN THE NORTH CENTRAL PROVINCE OF SRI LANKA

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ABSTRACT

Climate conflicts related to water scarcity has been reported in agrarian communities around the world. The failure of governments to ensure equitable management of resources that diminish with climate change, especially water resources, is identified as a root cause of climate conflict. Resource mismanagement leads to an increasing violation of Human Security. This study uses a systematic review method with semi-structured interviews to explore violations of Human Security in the farming community of the North Central Province (NCP). The findings suggest that water scarcity could increase Human Security violations in the NCP. This would exacerbate existing vertical and possible horizontal inequalities as it would intensify existing economic, health and environmental insecurities. The study finds that water-scarce climatic conditions could result in incentives for farmer conflicts in the NCP.

Keywords: Climate Change, Farmers, Conflict

INTRODUCTION

In 2014, the Intergovernmental Panel on Climate Change published a report on the link between the multiplier effects of Climate Change on Human Security and how it leads to conflicts (Adam et al., 2018; Abel, 2019). Improvised water governance is identified as one of the most crucial steps for climate adaptation,

especially as water sustains agriculture, the majority livelihood (Kopke et al., 2018). Global water conflicts are rooted in poor institutional capacities of water management bodies and treaties (Pahl-Wostl et al., 2012). This, international academics and development practitioners give significance to predicting climate conflicts in highly water-dependent contexts. In Sri Lanka, government ministries and institutions are the leading stakeholders responsible for facilitating climate adaptation strategies and water governance in the country (Prasanna, 2018). Thus, studying the implications of mismanaging water resources in the event of climate-driven water scarcity is crucial to avoid potential conflicts from occurring in countries which are vulnerable to Climate Change, specifically water scarcity.

METHODOLOGY

A descriptive research approach with semi-structured interviews was used to study 3 sub-questions regarding the farming communities in NCP. A systematic review of two databases and grey literature such as NGO reports was utilized. Snowball sampling was used to carry out seventeen online interviews with farmers, government officials and members of civil society, whilst ensuring gender/ethnic representation and geographical diversity of the sample. The

study ethics were reviewed and approved by the University of Birmingham.

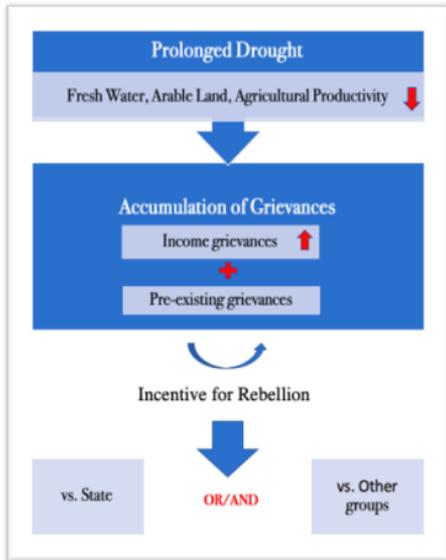
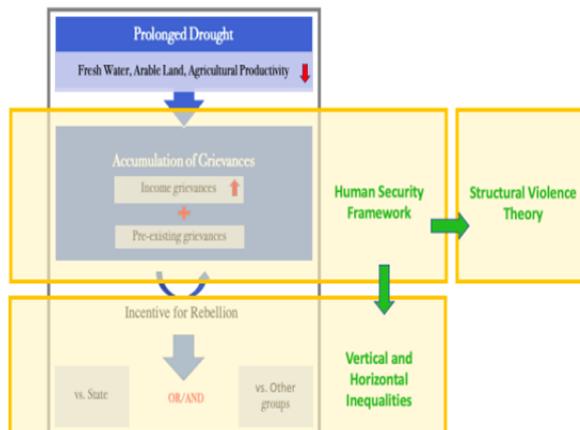


Figure 1: Depiction of framework by Uexkull (2014)

Q1. What might an analysis of the impact of climate-driven water scarcity, reveal about Human Insecurity of NCP farmers?

Uexkull (2014) has proposed a framework to identify how the accumulation of grievances due to prolonged drought (an increase of both income grievances and existing grievances) could lead to incentives for rebellion.

RESULTS



The "Human Security Framework" is a tool used to measure impact of water scarcity on economic security, food security, health security environmental security, personal security, community security, and political security (Özderem and Sofizada, 2006). The violation of Human Security fuels conflict (Barnett and Adger, 2007).

Q2. Do current water governance practices of the state contribute to Human Insecurity?

Sri Lanka's policies on water governance were assessed to deduce if they compromise the climate adaptation capacity of farmers. The "Structural Violence Theory" was used to analyse the implementation of these policies, supplemented with evidence from interviews (Galtung 1969, p. 170; Zografos et al., 2014).

Q3. Is their preliminary evidence to suggest this community would rise in conflict against the state?

The "Horizontal and Vertical Inequalities theory" of Frances Stewart (Stewart et al., 2005) was applied to the results of Q1 and Q2 in order to extract possible incentives for farmers to rise in conflict.

Figure 2: Visual depiction of the theoretical analysis conducted using the framework by Uexkull (2014).

The “accumulation of grievances” was evaluated using the “Human Security

Q1: Climate change will exacerbate existing economic, health and environmental insecurities. The framework by Uexkull (2014) suggests a corresponding possibility of incentives for conflict.

Q2: Findings from literature and interviews suggest that the nature of the interaction between farmers and the Sri Lankan state does lead to Human Insecurities.

Q3: Findings from questions 1 and 2 reports rising Human Insecurity in NCP farmers. There is evidence to support the presence of significant Vertical Inequalities but no significant perceptions of Horizontal Inequalities. Interviewees of all ethnic groups shared a common sentiment that government water distribution plans for domestic and agricultural purposes are not affected by racial discrimination of government employees. Sinhalese and Muslim farmers reportedly live in harmony at present. However, theoretically, there is potential for conflict over Horizontal Inequalities as certain political and historical factors could lead Sinhalese and Muslim communities to feel a sense of competition over scarce water resources.

DISCUSSION

The violations of Human Security and the nature of development policies, the farming community in NCP could have strong incentives to engage in conflict. However, the nature of this conflict requires further investigation. Evidence

Framework. The impact of state policies in creating these insecurities was assessed using the “Structural Violence Theory”. The “Vertical/Horizontal inequalities theory was used to identify incentives for conflict (either against the state or other groups).

from both theoretical and interviewing findings suggests a possibility of both Vertical and Horizontal Inequalities (related to income) leading to conflicts, with Horizontal Inequalities being the more likely trigger. One reason is the relative ease in recruiting members based on group identity (Ostby, 2013). These groups include those who fund the conflict and those who find incentive in the financial reward (Zartman, 2011). Similarly, farmers interviewed in this study lack the time needed to organize themselves towards creating a conflict as cannot afford to compromise working daily and earning a daily wage.

In Sri Lanka, the strongest sense of group identity is along ethnic and religious lines (Korf, 2006). This could lead the Sinhalese and Muslims to feel a sense of competition when accessing limited water resources. Therefore, a risk of conflict could potentially surface. The scope of this study does include an analysis of factors that contribute to ethnic conflicts over water resources, however, the study strongly suggests that climate-driven conflicts along Horizontal Inequalities are an area for further research, especially in a country with a long history of inter-communal violence.

CONCLUSIONS

The study provides a preliminary understanding of the potential for conflict among farmers in NCP and gives insights into the possible nature of these conflicts. The paper fills a gap in the broader

literature on the farming community in NCP and serves as a stepping stone for studies on climate conflict in Sri Lanka.

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A STUDY ON THE WHEREABOUTS AND INTERESTS OF ANCIENT TOURISTS WHO VISITED SIGIRIYA DURING THE 6TH - 11TH CENTURIES AD

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ABSTRACT

Main purpose of archaeology is to reconstruct the human past based on the archaeological record. Travelling to visit exotic places have been a practice of humans since early ages. Even though Tourism is considered as a quite modern human activity, its roots are far too old. In spite of that, few researches are carried out to understand about this forever present activity. Even those few studies are done mostly based on Greece, Rome and Egypt. Sri Lanka being a major tourism destination in the present world should conduct studies about its tourism past as well. In Sri Lankan context, most papers are written about Pilgrimage. However, Sigiriya plays a prominent role in Sri Lankan tourism industry now and archaeological records also show that it had been no different in the past. Therefore, this study took an attempt to understand about the nature of Ancient Tourism based on Sigiriya especially during the 6th - 11th Centuries AD. There were two objectives of this study which were to generate a map marking the whereabouts ancient tourists came from and to understand the features that were mostly admired by ancient tourists. 685 Sigiri graffiti deciphered by Prof. Paranavithana were used to extract data about ancient tourists. Journal written by C.W. Nicholas was used to understand the present locations of the village names mentioned by ancient visitors. Data were analyzed using content analysis and descriptive statistics. Data analysis shows

that ancient tourists have come to visit Sigiriya from various places of the countries. Those people have even come from areas like Jaffna, Mannar, Kalapitiya, Ampara, Trincomalee, Tissamaharama, Kirinda etc. They have also come from areas nearby Sigiriya such as Polonnaruwa, Ritigala, Places around Dambulla, Kibissa, Raththota, Malasna. Ancient tourists have mostly admired Sigiri frescoes making it the dominant feature. Natural beauty of Sigiriya, Entertainment Events, Lion's Structure, Mirror Wall and Remains of the Royal Palace have been admired by ancient tourists.

Key Words: Ancient Tourism, Main Tourist Attraction, Sigiriya, Tourist Profile, Visitor Map

INTRODUCTION

Background of the study

Archaeology is a field of study which mainly aims to reconstruct the culture histories, lifeways, cultural process and their meanings. In the core of archaeology, it is always that undeniable interest of humans to have a clear picture of how their ancestors lived and, how they exploited their environment. We, as humans are fond of learning how the same world we live today had been utilized by the past humans and to learn about their stories as humans more or less resemble the

behaviors and life patterns of their ancestors.

People leave their traces, even slightest ones when they finally become past. Those traces are found as remains most of the times. Those are considered as 'Archaeological Records' which help archaeologists in achieving above mentioned aims. Based on these archaeological records, an archaeologist tries to reconstruct the human past.

Tourism can be defined as the act and process of spending time away from home in pursuit of recreation, relaxation, and pleasure while hospitality is providing facilities to those who travel (UNWTO). Therefore, when people travel for recreation, tourism origins. And whenever tourism exists, different services are generated in order to cater to those who travel.

Travelling to visit exotic places and getting away from the day to day stress is not a newly found practice of the modern world people. It can be considered as a long-term phenomenon practiced by the humankind since early ages. Although from the perspective of today's tourism it seems that the ancient period does not appear to be the most appropriate time to consider the emergence of tourism (Vukonić, 2012), it gave birth to the trips which are by their features and participants' motivation and behavior quite similar to today's travel.

When it comes to Sri Lanka, it was forever referred to as a paradise by many people especially by travelers like Iban Battuta and Fa-Hien etc. And it is highly likely that Sri Lanka also had an early form of tourism as it is mentioned above about the world context. It is highly possible to find evidence of past tourism and hospitality occurrence in Sri Lanka. Sri Lanka is a leading tourism destination now and it operates as an industry in a wide scale. And any tourist who visits Sri Lanka has this prime purpose of visiting Sigiriya during their visit. Sigiriya is

considered as a key tourist attraction that should not be missed when visiting Sri Lanka. Archaeological records of Sigiriya tells stories about an existence of tourism in ancient Sri Lanka. Those Archaeological records give away several data which support the reconstruction of tourism in Ancient Sri Lanka.

Therefore, this paper aims to consider, the archaeological findings about Sigiriya and thereby extract details to make a conclusion on two important features of the profile of ancient tourists who visited Sigiriya.

Problem Statement

Travelling to visit exotic places and getting away from the day to day stress is not a newly found practice of the modern world people. It can be considered as a long-term phenomenon practiced by the humankind since early ages. In spite of that, a very limited number of studies are found in order to understand the ancient tourism practices. Humans have this tendency of leaving their mark behind whenever they travel. These traces could be either archaeological records and written records. Both of these helps to get an idea about the past human activities. Studying the material culture helps to understand about past human activities. Material culture consists of things as they are understood in relation to specific cultural and historic contexts, communities, and belief systems. Therefore, studying both written records and archaeological records these helps to reconstruct the past. The existing literature shows a huge gap in this field of study in Sri Lankan context. The fact is that the limited links between tourism research and history have led people to believe that tourism is a new phenomenon to Sri Lanka. Many researches have been carried out about Sigiriya but very less attempts are taken to interpret these archaeological records and written records in terms of

reconstructing the nature of ancient tourism. Therefore, an investigation would be useful to reconstruct the past of this phenomenon which is considered by many people as modern practice

Research Objectives

Researcher of the present study aimed at fulfilling two objectives. Those were, to generate a map by illustrating the areas of Sri Lanka from which the ancient tourists have come to visit Sigiriya and to understand the features of Sigiriya which were mostly admired by ancient tourists.

METHODOLOGY

This study is based on the Sigiriya Archaeological Site. Graffiti written on the surface of the Mirror Wall were taken into consideration. As this study based on the facts already found from previous archaeological findings, a Library Survey or a Desk Based Study was conducted. Prescribed Readings were used to extract needed to data fulfill the objectives of present research. Therefore, the study took a qualitative approach. Data were collected from Prescribed Readings as it is mentioned above. Seegiri Gee Siri by V.J.Mu Lokubandara and Sigiri Gee Nirmana by K. Jayathilake were the used by researcher to retrieve data about ancient tourists of Sigiriya. These books are based on the 685 of the verses on the mirror wall which were deciphered by Prof. Senarath Paranavithana as the researcher could not able to find the two Volumes of books which were written by Prof. Paranavithana based on Sigiri Graffiti. Since the modern place names of ancient names written on the mirror wall should also be identified, publications regarding ancient territories of Sri Lanka were referred. In order to fulfill the study objectives, data collection was done under the below mentioned steps, Readings graffiti one by one and noting down the whereabouts visitors came from if there are mentioned any. If

the same Village Name was mentioned in more than one graffito, researcher mentioned the repeated number accordingly. Then the ancient village names which were almost similar to the modern names were extracted from the list and they were noted down separately and the enter a MS. Excel sheet. Unfamiliar names were extracted into a separate MS. Excel sheet. Finally, out of the 685 verses, ones that mention the features admired by ancient tourists were entered into another MS. Excel sheet separately. After collecting data that were needed to draw the conclusions, they were analyzed as follows. Researcher went through the whole document of C.W. Nicholas to find if there are any names mentioned similar to the ones in Sigiri graffiti thereby an attempt was taken to get an idea about the unfamiliar names by referring the writings of C.W. Nicholas and their modern locations were noted down so that those can be marked on the map. The major features of Sigiriya that were appreciated by the ancient tourists were considered as different categories. Finally, researcher generated a visitor map by considering the identified village names. If the same name found from several graffiti, those places were not marked several times respectively. Instead of that, only one time was marked to represent the place. A pie chart was generated by using Ms. Excel to demonstrate findings on major attractions of Sigiriya.

RESULTS & DISCUSSION

Features of Sigiriya which were mostly admired by Ancient Tourists

Features of Sigiriya which were mostly admired by Ancient Tourists

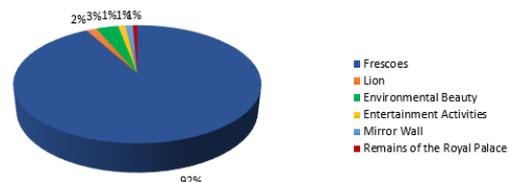


Figure 01: Features of Sigiriya which were mostly admired by Ancient Tourists

Above pie chart shows that there were mainly six features admired by the ancient tourists who visited Sigiriya. Those are Frescoes, Lion, Environmental Beauty, Entertainment activities or events, Mirror Wall and Remains of the Royal Palace. Out of those categories, Frescoes takes a percentage of 92 while supporting facts discussed in literature review. When getting the total amount of people who admired features, researcher did not consider the graffiti mere mentioning about frescoes. Only the ones that were written in a form of appreciation were

taken into consideration as some of those visitors have placed resentful comments about frescoes as well. All the rest of the categories owns up small percentages. ‘Lion’ or ‘Lion King’ have been appreciated by 2% of ancient visitors while the natural beauty around Sigiriya was admired by 3%. Entertainment activities, Mirror Wall itself and Remains of the Royal Palace were appreciated by 1% each of ancient visitors.

The map that shows the whereabouts of ancient tourists who visited Sigiriya

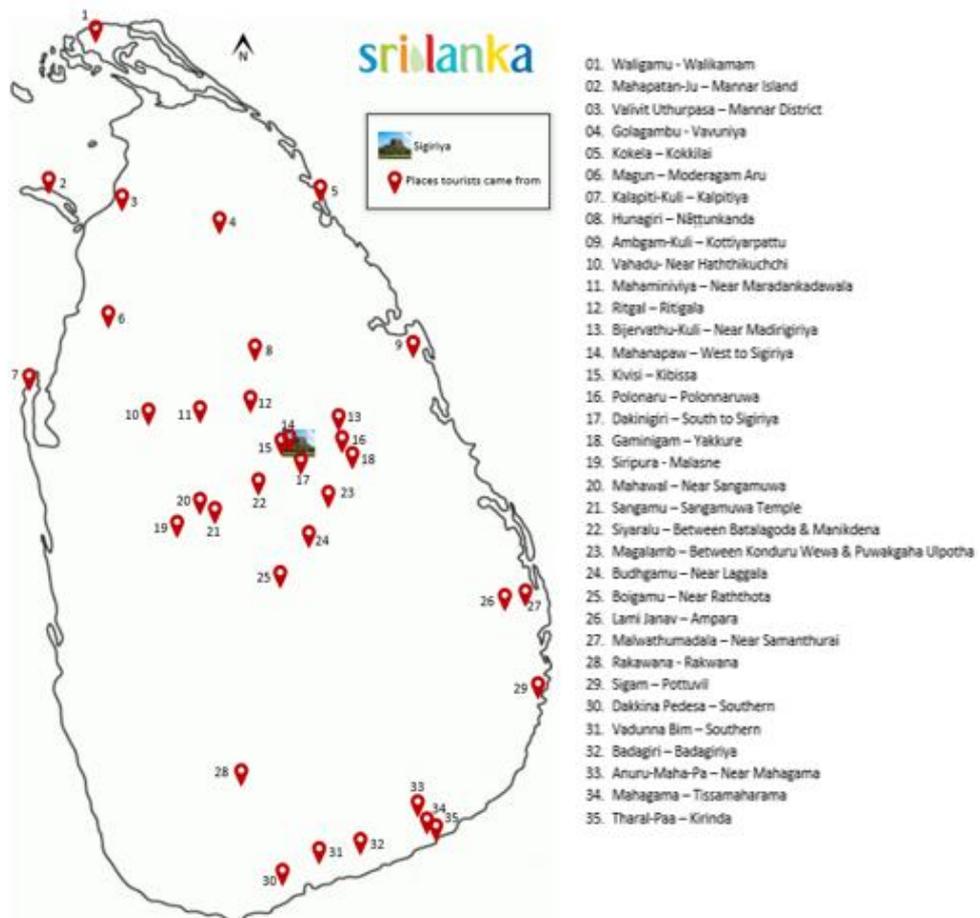


Figure 02: The map that shows the whereabouts of ancient tourists who visited Sigiriya

This map shows that ancient visitors have come from many the regions of the country to visit Sigiriya. 36 places have been recognized. Since all the places mentioned in Sigiri graffiti could not be understood with modern names it is difficult to draw the complete conclusion though. However, from what is depicted in above map it can be said that highest concentration is shown from nearby areas of Sigiriya. It is highly likely to think that people from nearby areas were interested in visiting this place. These nearby places include Polonnaruwa, Ritigala, Places around Dambulla, Kibissa, Raththota, Malasna Etc. Other than these nearby places, visitors from northern most parts of the country have also visited Sigiriya during the ancient times. ‘Uththara pedesa’ or Uthur’ was frequently mentioned graffiti. C.W. Nicholas suggests that this ‘Uthur Pedes’ must be present Northern Coast including Mannar district. Moreover, Walikamaam of Jaffna was mentioned as ‘Weligam’. Kapitiya and Mannar island was also mentioned as ‘Kalapiti-Kuli’ and ‘Mahapatan-Ju’. Present Vanniya was also mentioned as ‘Golgambu’. It can be seen from the map that ancient visitors have also come from Eastern part of the country as well. Eastern was mentioned as ‘Pajin’ in graffiti. Proving this, the map shows that visitors have come from places like around Trincomalee. They have also come from places now considered as Ampara, Samanthurai, Pottuvil etc. Ancient names of those places were ‘Lami Janav’, ‘Malvathu-Mandal’ and ‘Sigam’ respectively. These were belonged to ancient Rohana back then. The name ‘Rohana or Ruhuna’ was also frequently mentioned in graffiti. ‘Dakinipasa’ or ‘Dakunu-Pedes’ was also mentioned several times. Apart from that visitors have come from areas representing present places like Tissamaharama, Kirinda, Badagiriya. Rakwana was also mentioned as a whereabouts of a visitor. Hunnasgiriya

was also mentioned. According to the names identified, there is nothing mentioned about present Western Province. However, it is not fair to conclude that ancient visitors have not come from these areas as there are many names still left unidentified.

CONCLUSIONS

On a concluding remark, it could be said that Sigiriya Rock Fortress had been a tourism sensation mainly for the domestic visitors during the 6th - 11th Centuries AD because arrivals from different parts of the country could be seen. And just like today, those visitors had admired the scenic nature, cultural and artistic values of Sigiriya.

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WELLNESS TOURISM: A HIGH PROSPECTIVE NICHE MARKET AFTER COVID-19 IN SRI LANKA

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ABSTRACT

The COVID-19 pandemic has created a consciousness towards wellness tourism. From the idea of several definitions, it can be stated that wellness is a state of mental, physical, and social wellbeing. COVID-19 situation has caused severe damage to the economy, peoples' lives and created a new normal situation. This has instigated a stressful situation globally and the post-COVID-19 period can be a time that redirects the system of tourism and the opportunities for clear and responsible development. Even though, there are no proper directions, policies, statistics in Sri Lanka, and the awareness about the industry is considered to be very low. On the other hand, Sri Lanka's traditions, Ayurveda and Hela Wedakama practice along with the food and nature of the people of Sri Lanka, giving a promising opportunity to develop the sector as a niche. To understand that potential, this study aimed to understand the wellness tourism markets, setbacks of the currents industry, and the positioning strategies of the industry using thematic content analysis. Semi-structured interviews were used to understand the experience and perception of tourists and to identify the present situation of the wellness industry in Sri Lanka. This study reveals that Sri Lanka has an untouched, trustworthy competitive edge in wellness tourism even though the promotional activities are considered to be low when compared to other competitive countries. Nevertheless, at this moment, this can be considered as

the best option to travel after COVID-19. At present, their many setbacks can be observed in the industry and there should be proper direction and roadmaps need to be developed to progress wellness niche by grabbing the opportunity.

Keywords: Wellness Tourism, Positioning, Setbacks

INTRODUCTION

The tourism industry is considered to be one of the fastest-growing economic sources globally. Within the large market of tourism, niche sector like wellness tourism aims to generate a healthier population where the healthier population could be turned into a productive source of economic development. Wellness is identified as a concept of balancing and spirituality associates mental and physical health with environmental and social fundamentals (Steiner & Reisinger, 2006).

The COVID-19 pandemic had caused fear, anxiety, and stress due to social distancing, travel restrictions, and isolation. Once the global pandemic is over, then the demand for tourism will be stimulated, and using that opportunity, the proper implication of wellness tourism to de-stress, detox and reinforce peoples' well-being could be a long-standing solution for recurring to healthier and sustainable tourism development (Scott & Emma, n.d.). The hasty growth of wellness tourism started to focus on firming resources and to maintain and protect the

people of all types of age groups against illness.

GWI defines wellness tourism as the travel associated to improve and maintain one's personal well-being and detect mental, spiritual, and physical or environmental wellness while traveling for leisure or business (GWI, 2014). People travel to reduce stress, sustain a healthy routine, prevent disease, and boost their wellbeing (Scott & Emma, n.d.). According to UNWTO (2018), it has been stated in the international megatrend report (2019) regarding the trends influencing the travel and tourism industry and the major impacts of the tourism industry are identified as healthy living, which contains an enlarged focus on wellness. It is also significant that the wellness tourism market is a conspicuous driver and as reported in Global Wellness Institute (GWI) (2018), an estimated total of direct, indirect spending of \$683 billion accounted for.

The term "wellness" may seem to be a discovery in this period but in Sri Lanka, the identified heritage of culture and spirituality, availability of the resources which were used for the well-being of the population in Sri Lanka have been known for thousands of years (Government of Sri Lanka, n.d.). The wellness tourism in Sri Lanka considered as one of the evolving sectors in the export and the precise characters of the country's wellness sector, with the appropriate support and cherish, could contribute to the brand image development of nation as well as to the employment generation (Government of Sri Lanka, n.d.).

As per the report of the Government of Sri Lanka, the Wellness tourism sector receives only limited support as well as it is also reported with a shortage of information for further development. And it does not presently have committed policies, institutions, regulations, statistics, or specific support programmes and (Government of Sri Lanka, n.d.).

Therefore, this study focuses on developing wellness tourism as a high prospective niche market with all the potentials in Sri Lankan wellness tourism. To standardize the study, this has focused on the objectives such as understanding the competitive advantage and wellness tourism market of Sri Lanka, evaluating the present setbacks of the wellness tourism sector in Sri Lanka and identifying positioning strategies of the wellness sector as a niche market after COVID-19

METHODOLOGY

Considering the complexity and multidisciplinary nature of wellness tourism, this study focused on the qualitative approach and an exploratory study. To collect the primary data, semi-structured interviews were conducted over the telephone and skype considering the pandemic situation with representatives from government bodies related to the wellness tourism sector, service providers of wellness tourism, and with the tourists who have travelled for health and wellness before COVID-19. The sample consisted of 20 participants including 10 international tourists (snowball sampling technique), 05 members of government bodies in the wellness tourism sector (convenient sampling technique), and 05 members of wellness product service providers (convenient sampling technique). The secondary data was collected from the existing literature, journal articles, newspapers, reliable web sources, and books on the wellness tourism sector. Collected data were analysed through a thematic content analysis, the text of social investigation among the set of a pragmatic method (Kumar et al., 2018).

RESULT & DISCUSSION

Understanding the competitive advantage and wellness tourism market of Sri Lanka

Sri Lanka has an untouched, trustworthy competitive edge in ancient traditions, Ayurveda, and local Hela Wedakama ("Wellness Tourism – What do we need to know," 2020). The offerings of wellness tourism are mostly associated with incredible nature, people, and food. With all practices of Ayurveda and other preventive practices, several key competitors can be identified such as Thailand, India, Malaysia, Republic of Korea, and Dubai (Government of Sri Lanka, n.d.). Sri Lanka has been majorly considering the key competitive factors like reputation, image, the advantage of the places and the specialists, prices, facilities, and accessibilities. Even though there are no specific statistics related to wellness tourism in Sri Lanka, we can observe some sort of clarification regarding the offerings and the wellness tourism products of Sri Lanka. Ayurveda doctors have categorized wellness tourism into two types as preventive and curative activities.

While discussing the wellness tourism products, there is a huge demand for wellness tourism products, especially, Ayurvedic and Spa resorts, Yoga retreats, Hindu Ashrams and Beauty salons for prevention and Ayurvedic clinics as disease treatment outputs. This study had identified major competitive advantage of wellness tourism of Sri Lanka as, high demand for the supportive cultural heritage of Sri Lanka, merged traditional knowledge of Ayurveda which created a unique health system, meeting the clients' demand by reinforcing the alternative medicine through long traditional treatments and the mix of culture and food

traditions along with the benefits from its location.

Present setbacks of the wellness tourism sector

The existing situation of the wellness tourism sector has been identified with limited support and no proper directions, as well as there are no designated regulations, policies, organizational implications, and statistics. No specific private associations were found related particularly related to the wellness tourism sector. Through the thorough analysis of the contents, certain setbacks were identified in the sector such as there are no much value-added activities were observed in the field and the growth of wellness tourism industry is not considered as a major sub-sector, no proper policies and directions were identified and the strategic guidance has not been constantly implemented (Government of Sri Lanka, n.d.) and no proper monitoring strategies and information statistics were identified to cope up with the growth of wellness tourism as a niche market. Also, the attitude towards wellness tourism is considered to be low and because of that there are some limitations in finding the quality workforce and professionals such as spa doctors, Ayurvedic practitioners and as per the statement of current service providers, the career in wellness tourism industry holds a bad image among students and the public. Further, the absence of proper regulations and statistics it could be observed that some of the tourists are reluctant to experience wellness tourism in the future. Moreover, due to the less recognition of traditional medicines, there were some barriers to the service providers to enter into the career in the wellness tourism industry.

Positioning strategies of the wellness sector as a niche market after COVID-19

Tourism experts and professionals have been projecting that there will be an

enormous increase in demand for visiting wellness destinations as travel restrictions ease. To use this opportunity and to develop wellness tourism as a potential niche market, positioning strategies need to be considered.

- Positioning to the new markets: Sri Lankan concepts of wellness practices need to further focus on capturing new markets.

- Positioning based on Age groups: As today travellers look for meaningful traveling in the existing trends, the participants of this study from the young age group also expected spa, relaxation, and meditation treats as same as little older age group people expected yoga and meditation.

- Positioning based on quality & luxury: In the present situation Sri Lanka is not catering to the high-end market. And a segment of tourists is also willing to experience the luxury wellness treatments further some of the Ayurvedic resorts like Siddalepa, Jetwing, Santani, etc...already offers the high-end products.

CONCLUSION

The wellness tourism industry is still emerging in Sri Lanka. Availability of resources, funds received to recover from crisis, the practices of Ayurveda & Hela Wedakama as Sri Lanka's indigenous medicine, are the critical factors to develop wellness tourism as a niche market. During the crisis of COVID-19, the lockdowns made individuals cope up with home-based wellness practices such as gardening, Yoga, cooking, mindfulness activities, etc... ("Wellness and spiritual tourism after COVID-19," 2020). As per the study, no many travellers are aware of the wellness experience of Sri Lanka. Nevertheless, at this moment, this can be considered as the best option to travel after COVID-19. At present, their many setbacks can be observed in the industry

and there should be proper direction and roadmaps need to be developed to progress wellness niche by grabbing the opportunity. With high potentials, Sri Lanka needs to consider developing the career path, professionalism, and brand image of the wellness tourism industry.

RECOMMENDATIONS

- Build an information platform regarding the wellness tourism market, target market, and the visitor details.

- Structure a proper quality measure system for traditional wellness methods to market a quality wellness tourism output to the tourists.

- Expand and differentiate the wellness tourism industry and value-adding by focusing on new products, new markets, and classification of the target markets.

- Integrate the Sri Lankan traditional wellness sector and the modern health and medical tourism through institutional knowledge enhancements and strengthen both sectors with the proper route.

- Develop a sub-sector for luxury wellness tourism as currently, Sri Lanka focuses on "affordable wellness treats" and a small number of wealthy travellers.

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ENGAGE THE PAST TO ADVANCE THE FUTURE

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ABSTRACT

Navigating through very uncertain times, tradition and belonging becomes the new path to take. Designers are slowing down the making process in order to produce fewer and better pieces that are intended to be loved and treasured for generations. This research analyzes the role of local crafts as a tool to highlight the importance and value found in the skill, craft and story of the product and a source for its artists and creatives to interpret it through different techniques and mediums to contribute to its continued preservation and perpetuation through generations. In Transylvania, Romania, crafts such as embroidery, beading, lace making, wool processing, wood carving and much more continue to be part of the region's heritage. In order to sustain this practice not only in the region, but worldwide, both as the basis for the local economy and the people's heritage, it is necessary to seek alternatives to engage older craftsmen while attracting the younger generation. There must be a continuum of practice to transfer knowledge and know-how. This paper is based on a recently completed case study entitled ""Quiet Luxury"", conducted in 2020. Tradition and belonging to a community becomes the new path to take. Showing a durable, sustainable and carefully crafted approach, has become, more than ever, the norm in the creative industry and beyond. This journey of connecting to our ancestors and rediscovering their crafts, is imperative, in order to acknowledge, understand and pass on to future generations, is a constant work in progress.

Keywords: sustainability, heritage, craftsmanship, ancestral techniques

RESEARCH ON THE PROBLEMS AND COUNTERMEASURES OF INTANGIBLE CULTURAL HERITAGE EDUCATION IN CHINESE COLLEGES AND UNIVERSITIES

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ABSTRACT

In recent years, China has attached great importance to intangible cultural heritage education. For example, in 2021, Ministry of Education of the People's Republic of China added the specialty of "intangible cultural heritage protection" under the category of "art", and the projects of "entering the campus" of intangible cultural heritage have been continuously carried out in various schools across the country. So, what is the current construction of intangible cultural heritage education in Chinese colleges and universities? And what are the problems of intangible cultural heritage education in Chinese colleges and universities? This paper is a preliminary research of above 2 questions. This paper analyzes and selects the projects approved by National Innovation and Entrepreneurship Training Program for College Students in recent three years (2018-2020), obtains the projects related to intangible cultural heritage (time: September 22, 2021), and makes quantitative analysis from the number, region and content of these projects; then using the methods of questionnaire and interview, we invite more than 200 Chinese university students to fill in the questionnaire randomly and carry on the interview to 6 ordinary university students, so as to investigate the willingness of college students to participate in intangible cultural heritage education in colleges and universities and the influencing factors of their participation behavior. The main conclusions of this paper are: there is growing concern about intangible cultural heritage education in Chinese colleges and universities; Chinese colleges and universities have made some outstanding achievements in intangible cultural heritage education, but there are still deficiencies in diversity, universality and in-depth. What's more, colleges and universities face problems such as insufficient resources and mismatch between resources and students' interests. Based on the above analysis, this paper puts forward relevant suggestions from the perspective of students, such as the interest and diversity of activities that affect students' participation.

Keywords: intangible cultural heritage, education in colleges and universities, intangible cultural heritage protection

CONSTITUTIONAL PROTECTION OF CULTURAL HERITAGE IN THE SOUTH ASIAN COUNTRIES; LEGAL PERSPECTIVE

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ABSTRACT

A number of archaeological sites commencing from the pre- historic era, have been discovered in the South Asian region. Fifty-one of those have been declared as the world cultural heritage sites by UNESCO, including 2 sites from Afghanistan, 2 sites from Bangladesh, 33 sites from India, 2 sites from Nepal, 6 sites from Pakistan and 6 sites from Sri Lanka. As the constitution of a country considered the supreme law of the land, the objective of this study is to ascertain the extent to which the constitutional protection is available to preserve the cultural heritages under the constitutions of South Asian Countries. The research problem addressed in this study is whether the constitutions of the South Asian countries on protection and management of cultural heritages is in par with the global standards for protection and management of such heritages, and whether those are adequate and how those can be improved. The research methodology is qualitative and comparative in nature. The global standards for protection of cultural and natural heritages are found in the WHC, which recognizes both cultural and natural heritages. The cultural heritage sites all over the world are facing new challenges. Their protection is important due to many reasons. In South Asia, those sites create the cultural identity of South Asian Region. Those are tourist attractions and are main income for the South Asian countries. Suggestions for improvement will be made for countries which do not meet the international standards.

Keywords: Constitutional Protection, Cultural Heritage, South Asian Counties

PERCEIVED EFFECTIVENESS OF THERAPEUTIC COMMUNITY MODEL AS A REHABILITATION APPROACH FOR THE INDIVIDUALS WITH SUBSTANCE USE DISORDER, SRI LANKA

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ABSTRACT

Therapeutic community (TC) model is a long-term residential rehabilitation approach for substance use disorder (SUD) which exploits more than 65 countries including Sri Lanka. The acceptability of the TC, though well established in the western hemisphere, is lacking empirical evidence from Sri Lanka. A descriptive cross-sectional study was carried out to evaluate the perceived effectiveness of the TC model among individuals with SUD. All the rehabilitees of two selected residential treatment centers which use the TC model as the rehabilitation approach were invited to take part in the study and data were collected from 75 consenting male rehabilitees using an interviewer-administered questionnaire. The perceived effectiveness of the program was assessed using the Treatment Effectiveness Assessment (TEA) scale which assesses the extent of changes of the rehabilitees by the program. Data analysis was performed by using descriptive statistics. Most of the participants were Sinhalese (99%, n=74) with the mean age was 27±6 years. All the participants were polydrug users and the mean duration of substance use was 7±5 years. The mean scores obtained by the participants for the four areas (score range 1-10) in TEA were substance use (9±2), health (8±2), lifestyle (9±2) and, community (9±2). The mean score of the total perceived effectiveness of the TC model as a rehabilitation approach was high (34±5) among the participants (score range 1-40). Further studies are needed to compare the effectiveness of TC and other treatment approaches for SUD.

Keywords: Substance use disorder, Rehabilitation, Therapeutic Community model

PATIENT PERCEPTION RELATED TO NORMAL HOSPITAL DIET CONSUMPTION IN A SELECTED TEACHING HOSPITAL, SRI LANKA

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ABSTRACT

Majority of hospitalized patients depend on Normal Diet for their nutritional requirements. Government allocates a considerable amount of budget for hospital diet. However, hospital diet consumption is considerably low. Patient perception related to Normal Diet is important to combat this issue. The objectives of the study were to determine patient perception of food quality and food presentation related to Normal Diet consumption in North Colombo Teaching Hospital (NCTH) Ragama. This is a quantitative descriptive study using a convenience sample of 246 male and female patients who consumed Normal Diet. Data were collected using self-administered questionnaires and descriptive technique was performed for data analysis. Ethical approval was obtained from the Ethics Review Committee, The National Hospital Sri Lanka. Regarding perception of food quality, 27.6% of the patients were unsatisfied of the taste of food and 28.5% patients were unsatisfied with the smell. More than 40% patients were satisfied with texture, temperature, variety, quantity of the hospital diet. Regarding food presentation factors, 34.1% patients were unsatisfied with food serving method (bulk trolley method). Cleanliness of the utensils, attitude of the hospital staff, food distribution time, cleanliness of the area,

and hygiene of the hospital staff were rated as satisfied or good by more than 75% of the patients. Thus, it can be concluded that majority of patients were satisfied with the quantity, temperature, and texture of the food. Many were strongly satisfied with serving time, cleanliness of the utensils, attitude of the staff and hygiene of the staff. However, taste, smell should be improved. Serving method should be modified. Yet, these factors should be further studied in another setting with a larger sample.

Keywords: Normal Hospital Diet, food quality, food presentation

INTRODUCTION

Hospital diet is one of the main components of health care management of patients and one of the most relevant aspect of health care perceived by patient and by their families. Patients' perception on hospital diet is related to the consumption of hospital meals. Majority of hospitalized patients depend on Normal Diet for their nutritional requirements because they have no other ways of getting foods while hospitalized. Thus, Sri Lankan government allocates a considerable amount of budget for hospital diet. However, hospital diet consumption is considerably low in Sri Lanka (Fernando & Wijesinghe, 2015).

Therefore, patients do not receive the expected outcome of hospital diet. In addition to that, food wastage puts financial burden to country. Patient perception related to Normal Diet is important to combat this issue because majority of patients consume Normal Diet. Therefore, the purpose of the study was to describe patient perception of Normal Diet. The specific objectives were to determine the perception of food quality and food presentation related to Normal Diet consumption among patients in North Colombo Teaching Hospital (NCTH) Ragama.

METHODOLOGY

A quantitative approach with a descriptive design was employed in this study. A convenience sample of 246 subjects consuming Normal Diet was recruited for this study. This sample included both male and female subjects aged more than 18 years. Data were collected using a structured questionnaire which consisted of self-administered questions consisting of three parts. First part of the questionnaire gathered data related to social, demographic data. Second and third part of the questionnaire consisted of five Likert type questions related to patients' perception on food quality such as; taste, texture, nutrition, variety, temperature, aroma and appearance and way of food presentation such as; cleanliness of the utensils, attitude of the staff, food serving time, food serving method and hygiene of the server.

Prior research findings and opinions of experts were sought to achieve content validity of the questionnaire. It was pre-tested with randomly selected 25 couples to test the readability and understandability. Study was conducted at North Colombo Teaching Hospital (NCTH), Ragama from May 2019 to July 2019. Ethical approval was obtained from the Ethics Review Committee of National Hospital of Sri Lanka and permissions to conduct the study were obtained from the director of NCTH Ragama. Voluntary participation was encouraged and written informed consent was taken prior to data collection. Data were analyzed by descriptive statistics using Statistical Package for the Social Sciences (SPSS) 20.

RESULTS

The response rate of the study was 82%. Among the participants, 51.6% were females and 85.7% were aged more than 45 years. When considering the reason to consume hospital diet, they have no other option (47.6%), to cure disease (36.2%), believing of high nutrition value (12.2%). When the perceptions of the patients on food quality related factors were considered (Figure 1), the items which rated as either good or satisfied by the patients were texture (85.8), temperature (80.5), variety (74.8), respectively. On the other hand, the items patients were un-pleased with were taste of food (27.6%) and smell (28.5%).

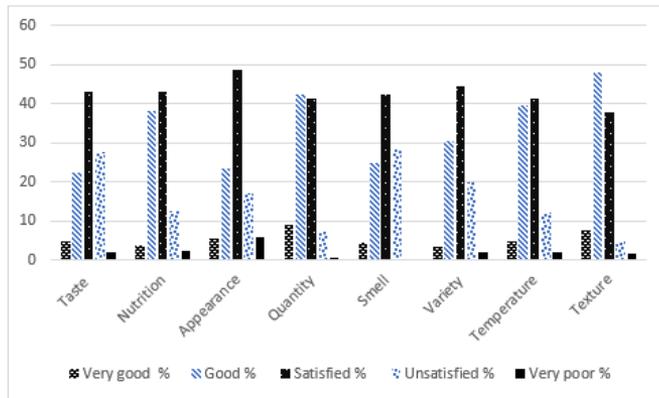


Figure 1: Perception of food quality related to hospital diet consumption

The findings of the food presentation factors are described in Figure 2. It was found that 95.1% patients rated that serving time was good. 28% patient rated that cleanliness of the area was unsatisfied

and 23.2% rated as it was good, and 50.8% patients were satisfied of the attitude of hospital staff. Food serving method was rated as either unsatisfied or very poor by 40.6% of patients.

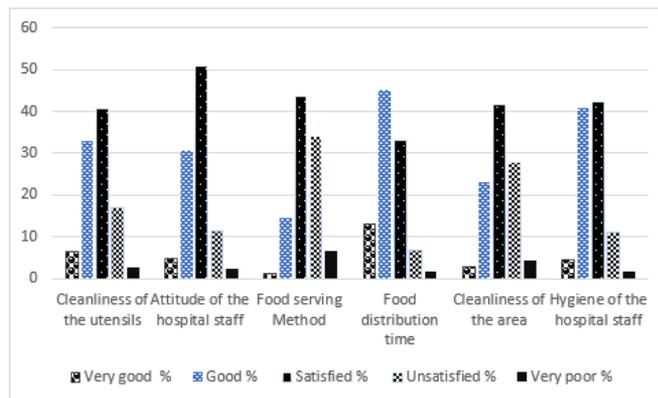


Figure 2: Perception of food presentation related to hospital diet consumption

DISCUSSION

The results indicate that majority of patients consumed hospital diet due to inability of getting food from any other way while hospitalized. This finding is supported by another study in London which highlighted that hospital in-patients often have difficulty accessing food (Naithani et al., 2008). However, in contrast, a study conducted in Saudi Arabia revealed that 70% of patients did not depend on hospital die (Amany et al., 2012).

In this study, more than 90% patients were strongly satisfied with quantity of the food provided from hospital. Similarly, in a study conducted in Karapitiya hospital reported that more than 80% patients said that they were satisfied with the quantity of all food items provided (Fernando et al.,2015).

Regarding the patient's perceptions of food quality such as appearance and variety of meals, almost the majority of the sample agreed that it was satisfied. Furthermore, many patients' perception of texture and temperature were either good

or satisfied. However, a considerable proportion of the sample were displeased with the taste and smell of the food. This finding is partially consistent with another study by Sahin et al., (2006) in which taste and appearance of foods were the most important determinants of overall dissatisfaction.

Food quality provided at the hospital is found to have great effect on the patients' satisfaction level by several studies. Fernando and Wijesinghe (2015) highlighted that food quality was the best forecaster of patients' satisfaction with meals and food services. Jones and Capra (2017) also agreed that quality, appearance and taste of the meals, were found to be more important to patients. Stanga et al (2003) also found that patients perceived that the temperature, appearance and aroma of the food were particularly important.

Serving time, hygiene of the server and cleanliness of the utensils are the factors that patients perceive as having strong satisfaction. Furthermore, most of the patients' attitude of the staff as good. These dimensions have been mentioned in other studies as being compromised and negatively affecting patients' food consumption (Aminudeein, Vijayakumaran and Razak, 2018; Jessri et al., 2011).

Many patients rated serving method and serving area as unsatisfied or very poor. A study conducted in East Malaysia found that the type of food service system (plating system) had an effect on patients' diet consumption (Aminudeein, Vijayakumaran and Razak, 2018). A study in Saudi Arabia also highlighted the importance of room service system to deliver food improve patients diet consumption (Amany et al, 2012).

CONCLUSION

As the results indicated, there are differences in satisfaction level due to various factors. Majority of patients were satisfied with the quantity, temperature, texture and nutrition of the food. Most of the patients are strongly satisfied with serving time, cleanliness of the utensils, attitude of the staff and hygiene of the staff. As a conclusion, both quality of hospital diet and food presentation affected to the hospital diet consumption. Therefore, it is recommended that taste, appearance, smell and variety should be improved regarding food quality and specially food serving method should be modified regarding food presentation.

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HEALTH PROMOTING LIFESTYLE BEHAVIOR AMONG STUDENTS AT SCHOOL OF NURSING IN SRI LANKA

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ABSTRACT

Healthy lifestyle behavior among the nursing students may not only affect their lives, but also the quality of patient care and quality of patient education. To investigate the health promoting lifestyle behavior and associated factors of nursing students in the School of Nursing, Sri Lanka.

Method: A cross sectional survey with a quantitative design was used on 196 first year nursing students. Data was collected by using a self-administered questionnaire, consisted of demographic data, health habits and Health Promotion Life Style Profile II (HPLPII). Data was analyzed by using SPSS21. Kolmogorov- Simirnov and Shapiro- Wilk's tests were used to determine whether variables were normally distributed. Mann Whitney test and Kruskal Wallis test were used to compare of independent samples with continuous dependent variable appropriately.

Results: The highest score in the subscales were for the interpersonal relationship and spiritual growth. Students who had regular sleep and who exercised regularly between 90-150 minutes per day had the highest HPLPII score. The lowest mean score value was shown for the subscale of physical activity. There was no association between BMI and different type of student's accommodations and the HPLPII. Regular sleep, everyday exercises and eating fruits were statistically significant with the total HPLPII.

Conclusion: Nursing students displayed unsatisfactory level of health promoting behaviors.

Key wards: Health Promotion Lifestyle Behavior, Profile Scale (HPLPII), Nursing Students

KNOWLEDGE AND ATTITUDE REGARDING SAFE HANDLING OF CHEMOTHERAPEUTIC DRUGS AMONG NURSES IN SRI-LANKA: A CROSS SECTIONAL SURVEY

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ABSTRACT

An increasing trend of cytotoxic drug use, mainly in cancer treatment, has increased the occupational exposure among the nurses. As a result, workers involved with handling antineoplastic drugs may be accidentally exposed to these agents, placing them at potential risk for long-term adverse effects. This study aimed to assess the knowledge and attitude regarding safe handling of chemotherapeutic drugs among nursing personnel in all oncology units in Sri Lanka.

Material & Methods: Non-experimental descriptive cross sectional survey approach was used. 626 subjects were selected as sample. The knowledge questionnaire to assess knowledge and Likert's scale to assess attitude was used. Descriptive statistics, chi square and t - tests were used to analysis data.

Results: The result revealed that the overall mean knowledge score of the Sri Lankan oncology nurses, as found in this study, was 72.67. The knowledge score of individual nurses has fallen on a wide range with the minimum score of 26.32 and the maximum score of 94.74. The knowledge of Sri Lankan oncology nurses on the handling chemotherapeutic drugs considered as unsatisfactory. Majority of nursing personnel had poor attitude regarding safe handling of chemotherapeutic drugs. Association between knowledge with their selected socio-demographic variables was calculated by chi square test. The statistically significant association was found between knowledge regarding safe handling of chemotherapeutic drugs age and education of nursing personnel. **Conclusion:** The results of the present study reveal that there is unsatisfactory knowledge and poor attitude regarding safe handling of chemotherapeutic drugs among nursing personnel.

Key words: Knowledge, chemotherapeutic-drugs, nurses

A SECONDARY DATA ANALYSIS OF MORPHODYNAMICS IN THE COASTAL AREA AROUND PORT OF OLUVIL

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ABSTRACT

The Port of Oluvil, situated in the east coast of Sri Lanka, was built at a cost of over Rs.700 billion. It consisted of a grant of Euro 86,000 & an interest free loan of Euro 46 million by a Danish Bank & also additional Rs. 426 million spent by the Sri Lanka Ports Authority. From the day it opened in 2013 it could not be used due to sand accumulation blocking the entrance. The purpose of this study is to conduct a Secondary data analysis to identify the weaknesses of the initial project and the remedial measures suggested by various professional and academic bodies. The main methodology compiles data on both erosion and accretion activities in prior research, identify suggestions which have been proposed to control the intensity of shoreline changes and morphodynamics in the coastal area of Oluvil region to rectify the problem. Finally, reflection on current challenges that need to be addressed to achieve a more comprehensive and detailed model leads to recommendations and the need for further research in Morphodynamics in the coastal area Port of Oluvil.

Key words: Sri Lanka, Port of Oluvil, Secondary data analysis

INTRODUCTION

Prasad and Kumar (2014) claim that the coastline, which separates the land

from the sea, keeps changing its shapes and position continuously due to dynamic environmental conditions. Coastal morphodynamics is the research field that studies the mutual interactions between the seabed morphology and coastal hydrodynamics through sediment transport (Wright and Thom, 1977). Coastal morphodynamics in Oluvil Port, Sri Lanka, has been a turbulent research area since 2013.

METHODOLOGY

Secondary data analysis is the main methodology used in this study. According to (Johnston, 2012) secondary data analysis offers methodological benefits and can contribute to research through generating new knowledge. The process of sediment transport has been broadly studied but still found to be complicated to predict the process with any degree of confidence (Dean and Dalrymple, 2004)

Secondary data analysis: Oluvil Port development project

This section will review selected articles to trace the developments and evaluations of the Oluvil Port development project.

In November 2011 Frigaard & Margheritini, at the request of Danish International Development Agency (DANIDA) in Denmark, furnished a 3rd

party opinion on the Olivil Port Development Project Study done by Lanka Hydraulic Institute in June 2011. After a multitude of feasibility studies and detailed design studies were carried out by Lanka Hydraulic Institute Ltd from 1995 to 2003 the construction of the port commenced in 2008. Frigaard & Margheritini (2011: 7) state that 'the outer breakwaters were constructed first. They further state that 'severe erosion was seen to the north of the Port & some accumulation is seen to the south of the harbor'. They conclude that resultant of the two effects is the net erosion & accumulation.

Wickramaratne, Dissanayake and Dharmadasa in a Conference Paper published in January 2012 titled Numerical Modeling of Siltation & Erosion Issues at Olivil Port affirm the reservations expressed by Frigaard & Margheritini (2011) were proved true. They state that 'as the construction work progressed there was severe erosion & accretion issues observed to the north & south of the port respectively. The issue turned out to be more significant after the two breakwaters came into existence.' (Wickramaratne, et al, 2012: 2). Wickramaratne, et al. (2012: 12) do not propose offshore breakwater structures to south as they 'will only shift the accretion problem further south'. They further state (ibid) that the sand already accreted in south can be suitably utilized in the construction stage of proposed breakwaters.

The Auditor General of Sri Lanka in the Report titled Economic, Social and Environmental Impact Caused by the construction of the Port of Olivil (2015) to find out if funds that had been committed for the purpose of building the Port of Olivil had been utilized effectively, efficiently & economically as well as the evaluation of the environment and social impact caused therefrom. The Auditor General's in his report (2015) states that

the financial feasibility study conducted between 1995 & 2000 indicated a negative value but acceptance was granted according to the sensitivity analysis under the Nagenahira Navodaya as the project envisaged to facilitate development and provide employment. The report further states that 'project had taken 17 long years from design to completion as it was implemented without a Master Plan with time frames' (2015: 1). Thus, the construction work took 4 years (2008 to 2013) and the port opened in 2013. The Auditor General's report (2015: 15) further states that the entrance to the Port is 'subjected to severe sand accumulation preventing the passage of ships into the Port and as such the objectives expected from the Port Project had not been achieved'. The report concludes that 'as the construction work of the Project has already been completed the rectification of the deficiencies observed during this audit is a difficult task (2015: 9)

In a study titled Coastal Morphodynamics associated natural hazards: a case study of Olivil area Nijamir and Kaleel (2018) discuss coastal morphodynamics associated hazards which are caused by the natural phenomena. Morphodynamics is defined as the study of landscape changes due to erosion & sedimentation. The objectives of the identified the coastal morphodynamics associated hazard caused by the waves in the Olivil area and using Geo Spatial Technology it aimed to detect coastal morphodynamics using time series data from 1981 to 2015 and show the intensity of shoreline changes. The study was conducted in two segments: the first segment from Olivil Harbor Northwards to Nochchiyadi river mouth and second from Olivil Harbor to Sinnapalamunai. Collected data through aerial photographs and geo-referencing depict significant change of shorelines either through erosion or accretion trends. Nijamir and Kaleel (2018: 122) conclude

that during the study periods, accretion activities are high when compared to erosion in the study area and erosion activities have not occurred in the southern part of harbor area. It was observed from the above table given in hectares, that the resultant erosion increased more than twice annually to 0.35 hectares per year after the construction of the port to the northwards to the Nochchiyadi (Galoya) river mouth. Nijamir and Kaleel (ibid)

draw attention to the accretion during this period, which gradually formed a piece of land with an area of 14.47 ha protruding southwards.

Synthesizing the multitude of suggestions proposed by prior studies to control the shoreline erosion and accretion of the coastal area of Oluvil region this study constructs the table below.

Table 5: Synthesis of suggested solutions and criticisms in the research articles reviewed for secondary data analysis of this study

Research	Suggested solutions/criticisms/ remedial actions in prior studies in chronological order			
LHI, (June 2011)	Offshore Breakwaters	Fish Bone Groynes	Artificial Nourishment	
Frigaard & Margheritini (November, 2011)	The Breakwaters are shorter and closer to shore than often seen.	The length of the Fish Bone Groynes and the distance between them are shorter than often seen.	Both solutions are expected to work in the sense that they will decrease erosion, but they will not stop the erosion	Need for more protection works in the future is foreseen
Wickramaratne, et al. (2012)	4 Offshore breakwaters 40m in length and 500m apart. Proposed offshore breakwaters are expected to reduce the erosion in north which in turn, decelerate the accretion in South.	A Fish Bone groyne field of two sets of 3 L-shaped groynes 75m in length and 250m apart.	Artificial nourishment of eroded beach. Replenishing with a 'dredge and haul' operation. A permanently established dredger amalgamated with port infrastructure.	
	In The feasibility study, the restriction for the movement of ships due to sand	Punishments should be meted out for the failure of the Institutions and Officers to	large scale sand removal & permanent solution to enable use of harbor.	The Breakwaters are shorter and closer to shore than often seen.

	accumulation, the determinations have not been realistic. The data entered for the feasibility study was obtained over a short period making the study results less accurate.	perform their duties.		The length of the Fish Bone Groynes and the distance between them are shorter than often seen. Recommend further action on offshore breakwaters already constructed.
Nijamir and Kaleel (2018)	Extending the breakwater to the larger coverage area by small segments	Using alternative breakwater system such as wave-eater system (floating breakwater)	Protecting mangroves, rift fences to control wind erosion	Replanting and laying concrete interlocking pieces

Synthesis of suggested solutions and criticisms in the research articles in the table above indicate that Auditor General's Report (2015: 2 – 20) highlight the Institutions and Officers to perform their duties. Many of the reviewed research consider Offshore Breakwaters and the Fish Bone Groynes to be cheap solutions. Furthermore, the length and the distance of the Breakwaters from the shore raise doubt about their functionality. The length of the Fish Bone Groynes and the distance between them are shorter than often seen. Thus all cited research argue that these constructions will not halt the erosion.

Synopsis of recommendations compiled through Secondary Data Analysis

Short term

- Maintenance or regular dredging to maintain the depths ensuring that the

approach channel & basin depths are maintained as initially intended.

- The recovered sand can be cleaned and sold.

Long term

The port entrance breakwaters are too short & need to be lengthened to the deep contour and the port approaches may have to be realigned after the sediment transport trends are further studied.

Recommendations by CINEC for a simulator based solution

The CINEC Wartsila-Transas 5000 Simulator with its Design Tool can be used to recreate simulation studies before and after the construction of breakwaters of the port on alongshore current and sediment transportation. The Northeast monsoon & Southwest monsoon wind/wave/current/sediment transportation, accurate long term data are needed as input. Alongshore current and resultant sediment transportation northwards was there even before the

construction of the breakwaters. The breakwaters obstructed the alongshore current & sediment transportation and the overflow filled the harbor without allowing sand accretion flow to the north. The Simulator study will help in realigning/ lengthening the breakwaters to the deeper contours so that the alongshore current & sediment transportation is not obstructed.

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THE PATTERN OF FISH CONSUMPTION AND CONSUMPTION BEHAVIOR AMONG SRI LANKANS IN THE CENTRAL PROVINCE OF SRI LANKA

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INTRODUCTION

Fish remains the primary source of nutrients for the population of Sri Lanka. Being a tropical island with a total coastline of approximately 1700km and over 121000 hectares of lagoons and estuaries, the consumption of fish plays a vital role in the population of Sri Lanka with over 2.4 million employed in the fishing industry (Drenstig, 2020). In addition, the total fish production in Sri Lanka has increased from 279,900 Mts in 1999 to 506,070 Mts in 2019 as stated by the National Aquaculture Development Authority of Sri Lanka makes it evident that the Sri Lankan population relies on fish as their primary source of proteins with an estimated per capita fish consumption of 31.4 kg per year in 2016.

The nutritional composition of fish primarily consists of proteins, vitamins, minerals and polyunsaturated fatty acids which varies in content depending on the species of fish. The protein content of fish is typically between 18g – 20g per 100g of fish making it a great source of proteins. An additional advantage is the low levels of saturated fats, reducing the risk of developing coronary heart diseases (Swanson, Block and Mousa, 2012). The anti-inflammatory effects of polyunsaturated fatty acids such as EPA and DHA decreases the risk of developing neuroinflammatory and autoimmune disorders, along with improving the metabolic rate (Shi et al., 2016; Logan and

Spriet, 2015). In addition, studies show that Omega-3 fatty acids contribute towards the treatment of cancer by increasing the response rate to chemotherapy (Laviano et al., 2013). Despite the health benefits, the consumption of fish majorly depends on the fish production. Incidents such as the SARS-CoV-2 pandemic led to several confinement measures leading to a drop in fish production from 506,070 Mts in 2019 to 429,150 Mts in 2020. The consumption of fish could depend on the socio-demographic factors of the consuming population. The purpose of this study is to identify any significant associations between the consumption of fish and the population of the Central Province of Sri Lanka, along with the most common species of fish consumed in addition to the types of post-harvest fish products consumed.

Keywords: Fish consumption, Central Province, Fish products

METHODOLOGY

A self-administered questionnaire was prepared, containing questions regarding the types and species of fish consumed by the population of the Central Province of Sri Lanka, the socio-demographic factors of the respondents along with the types of post-harvest fish products consumed.

The questionnaire was published on Google Forms from the 27th of June 2021 to the 09th of July 2021. The responses were sorted and counted to be analyzed and identify the popular species of fish consumed.

SPSS (Statistical Package for the Social Sciences) Version 25 was used to carry out the Chi-Squared test, where the level of significance was 0.05, to determine the presence of a significant association

between the consumption of fish and the socio-demographic factors of the respondents.

RESULTS

186 responses were collected from all three administrative districts of the Central Province of Sri Lanka. The socio-demographic factors of the respondents were sorted into Table 01.

Table 01 – Summary of the socio-demographic factors of the respondents

Socio-Demographic Factor	Division	Fraction	Percentage (%)
Age	18 - 21 years	47	25.27
	21 - 25 years	68	36.56
	25 - 30 years	46	24.73
	> 30 years	25	13.44
Gender	Male	92	49.46
	Female	90	48.39
	Other	4	02.15
Religion	Buddhist	145	77.96
	Catholic	13	06.99
	Hindu	13	06.99
	Muslim	15	08.06
Level of Education	Ordinary Levels (O/L)	11	05.91
	Advanced Levels (A/L)	57	30.64
	Undergraduate	80	43.01
	Postgraduate	38	20.43
Monthly Income	< 20000 (LKR)	35	18.82
	20000 - 50000 (LKR)	66	35.48
	> 50000 (LKR)	85	45.70

161 of the 186 respondents (86.56%) stated that they consume fish, out of which only the minority (42.24%) stated that they consumed fish more than once a week.

The Chi-squared tests was carried out to determine the presence of a significant association between the consumption of fish and the socio-demographic factors of the respondents, and the calculated χ^2 values and p-values are given in Table 02.

Table 02 – Results of the Chi-squared tests

Socio-demographic Factor	χ^2 value	p - value
Age	7.209	0.066
Gender	5.761	0.056
Religion	7.732	0.052
Level of Education	0.740	0.864
Monthly Household Income	1.737	0.420

The respondents were questioned on the types of fish they consume where 89.44% of the respondents stated they consume marine fish, along with 42.24% stating

they consume inland freshwater fish. Lagoon fish was the least consumed with only 24.22% of the respondents consuming.

Figure 01 outlines the percentages of consumption of the most common species of marine fish consumed

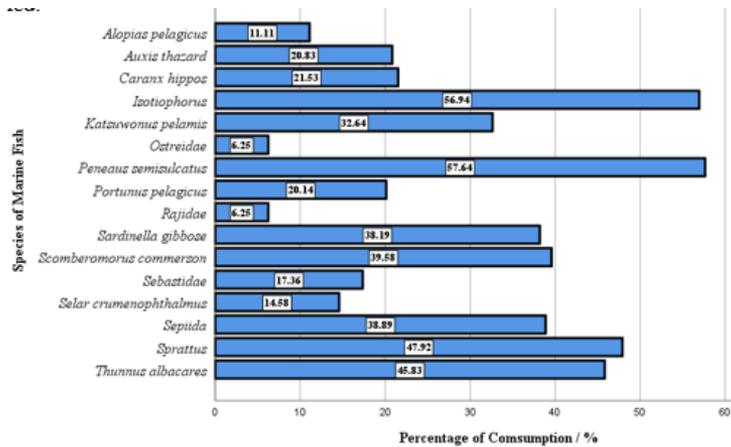


Figure 01 – Percentages of consumption of the species of marine fish

Figure 02 and Figure 03 outlines the percentages of consumption of the most common species of lagoon fish and inland fish consumed

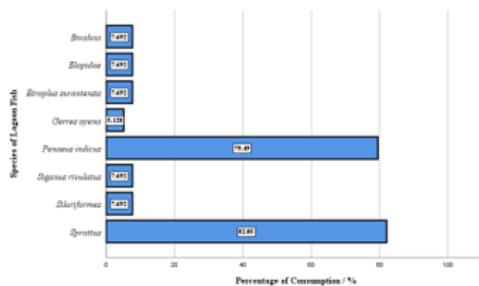


Figure 02 – Percentages of consumption of the species of lagoon fish

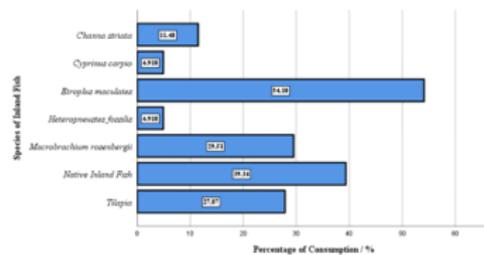


Figure 03 – Percentages of consumption of the species of inland fish

58.39% of the respondents that consume fish stated the primary reason for doing so was due to the nutritional advantages of fish. The remaining respondents consume fish due to the taste and its relative abundance. 36% of the respondents who do not consume fish stated it was due to religious beliefs. The most common post-harvest fish product consumed by the respondents was dried fish with a percentage of consumption of 72.5%. The main reason for consuming post-harvest fish products was identified to be due to its ease in preparation and the improved flavor.

DISCUSSION

When comparing the socio-demographic factors of the respondents, the majority of which were males (49.46%) between 21 to 25 years of age (36.56%). 77.96% of the respondents were Buddhists which can be accounted for by the high population of Buddhists in Sri Lanka (Department of Census and Statistics – Sri Lanka, 2019). Despite the geographical distance from the Central Province to the coastal areas, marine fish (89.44%) was consumed more than inland fish (42.24%) with possible reasons being the higher production of marine fish (326,870 Mts) compared to inland fish (102,220 Mts). The percentage of consumption of the species of fish correlates with the production of that specific species with several varieties of Tuna had high percentages of consumption among the respondents correlating with its high production. The p-values calculated through SPSS determined that there was no significant association between the socio-demographic factors and the consumption of fish as the p-values were higher than the level of significance (0.05). A similar research carried out in Peninsular Malaysia concluded that there was no correlation between socio-demographic

factors of a population and the consumption of fish whereas a study carried out in Bangladesh stated there is a significant correlation (Ahmad et al., 2016; Hoque et al., 2014).

CONCLUSION

The Chi-Squared tests carried out concluded that there is no significant association between the consumption of fish and the socio-demographic factors of the population in the Central Province of Sri Lanka. The types of fish consumed the most by the respondents were species of marine fish (89.44%). The species of fish heavily consumed was found to correlate with the species of fish with the highest catch.

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ANALYSIS OF THE PHYTOCHEMICAL CONTENT AND DETERMINATION OF THE ANTIOXIDANT CAPACITY OF THE LEAVES, STEMS AND FLOWERS OF SESBANIA GRANDIFLORA (HUMMINGBIRD TREE) IN SRI LANKA USING DIFFERENT SOLVENTS FOR EXTRACTION

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ABSTRACT

Recently, plant-based medicines show growing demand as they are a source of natural antioxidants with great preference due to their minimized side effects. *Sesbania grandiflora* is rich in phytochemicals, and antioxidants, thus have been used in Ayurveda medicine. In the current study, the leaves, flowers, and stems of *Sesbania grandiflora* were manually extracted using 80% methanol, 80% ethanol, chloroform, and distilled water as solvents. Phytochemical screening tests were followed to confirm the occurrence of alkaloids, flavonoids, saponins, tannins, triterpenoids, cardiac glycosides, and carbohydrates. The antioxidant capacities were determined using the assays: 2,2'-Azino-bis(3-ethylbenzothiazoline-6-sulfonic acid) (ABTS), 2,2-Diphenyl-1-picrylhydrazyl (DPPH), Ferric-Reducing-Antioxidant-Power assay (FRAP), total antioxidant capacity assay (TAC), total flavonoid content (TFC), and total phenolic content (TPC). The spectrophotometric analysis was performed for determining the antioxidant capacity. All samples were triplicated. The leaves showed to contain a high concentration of the phytochemicals that were tested for, followed by moderate concentrations in flower and stem. The chloroform extracts of flower were shown to have more flavonoids (12.693 mgRE/g) while chloroform extracts of stems had more phenolic antioxidants (15.776 mgGAE/g). The results showed that chloroform is the most effective solvent to extract the non-polar phytochemicals in all three parts. The results of the DPPH, FRAP and ABTS assays demonstrated that methanol and ethanol extracts showed higher antioxidant activity. Furthermore, the methanol extracts of stem had stronger free radical scavenging activity in the DPPH (94%) assay, whereas ethanol stems had the most ABTS (81%) findings, and methanol flowers had the highest FRAP results (74%). Further improvements to this research can aid in the development of new drugs that will work against many acute and chronic diseases.

Keywords: *Sesbania grandiflora*, Phytochemical content, Antioxidant activity

DETERMINATION OF ANTIBACTERIAL PROPERTIES OF CLITORIA TERNATEA FLOWERS OF SOUTHERN PROVINCE AND WESTERN PROVINCE, SRI LANKA AGAINST STAPHYLOCOCCUS AUREUS AND ESCHERICHIA COLI

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ABSTRACT

Antibiotic resistance in synthetic antibiotic therapy has become essential in the development of new antibiotics to combat infectious diseases. Conversely, natural antibiotics can be made from plant components that have an antibacterial impact on bacteria. The antibacterial activities of the two different extracts of *Clitoria ternatea* flowers were studied which were collected from two different provinces in Sri Lanka. The extracts of *Clitoria ternatea* were done from Soxhlet extraction method from using ethanol and hydro-distillation method. The plant extracts were tested against two bacterial species which are *Staphylococcus aureus* and *Escherichia coli* by the disc diffusion method. The statistical analysis of observed results was shown the plant extract of *Clitoria ternatea* expressed a significant difference between the inhibitory activity between the two bacterial strains and between the two different extraction method by showing a P value less than 0.05 ($P < 0.05$). The ethanol extract was found to be most effective and significant antibacterial activity against the studied organisms mostly with *Staphylococcus aureus*. The water extract of *Clitoria ternatea* flowers were showed less potent against the tested species. Anthocyanin plays major role in synthesis antibacterial effect in this plant. Accordingly, under two different extraction methods, the relationship of

anthocyanin consistency in the plant extracts against two bacterial strains were observed in this study. *Clitoria ternatea* can be utilized to find bioactive natural compounds that could contribute to the formation of new medications for natural plant-based medicine also in food preservation

Keywords: *Clitoria ternatea*, Antibacterial, anthocyanins, *Staphylococcus aureus*, *Escherichia coli*

INTRODUCTION

In the past decades, antimicrobial resistance has become a significant public health concern. The emergence of bacterial resistance occurred with widespread usage of antibiotics for medicinal purposes and moreover, agricultural purposes. (Rahman and Sarker, 2020).

The growth and pathogenicity of many microorganisms have been discovered to be inhibited by plants employed in traditional therapeutic methods against diseases (Sofowora, Ogunbodede and Onayade, 2013). Moreover, plants synthesize secondary metabolites, as an adaptation for self-defense and communication with other organisms in their ecosystems (Harvey et al., 2015).

Anthocyanins are one of the effective water soluble, bioactive secondary metabolites that found in plant materials.

The antibacterial effect of anthocyanins exhibits through inducing cell damage by damaging the cell wall, cellular membrane, and intercellular matrix from different action mechanism (Pojer et al., 2013). Due to their interaction with membrane proteins on the bacterial cell wall, increased permeability and disruption of the membrane is observed (Gupta and Birdi, 2017 ; Alara, Abdurahman and Olalere, 2017).

Clitoria ternatea (blue butterfly pea) is one of the medicinal plants that commonly grown in Sri Lanka which contained in anthocyanins in their flower petals. These pigments are comparatively low toxicity (Charurungsipong et al., 2020) which is beneficial feature in drug designing. The stability of anthocyanins which undegraded and their antibacterial effect having simultaneous interaction in between (Wu et al., 2021). The purpose of this study was to determine the antibacterial effect of *Clitoria ternatea* with different solvent extracts on two bacterial species: *Staphylococcus aureus* and *Escherichia coli*.

METHODOLOGY

Clitoria ternatea flowers for ethanolic and water extracts were collected from Southern and Western provinces in Sri Lanka and were studied for their

antibacterial activity against *Staphylococcus aureus* (ATCC 25923) and *Escherichia coli* (ATCC 25922). The dried plant samples were powdered and then the extracts were prepared from two different solvents which were ethanol and water. Ethanol extraction was done according to Soxhlet extraction method and water extraction was done under hydro distillation method. *Staphylococcus aureus* and *Escherichia coli* were cultured on Mueller Hinton agar plates. Antimicrobial activity of the two different plant extracts were tested using the disc diffusion method where antibiotic gentamycin was used as the positive control. The prepared agar plates were incubated for 24 hours under 37°C. The observed data were statistically analyzed by the GraphPad Prism 9.2.0 software version.

RESULTS

The observed results of the study were shown antibacterial properties of the two extracts of *Clitoria ternatea* flowers were tested against two clinical pathogens as in figure 01 below. Through antimicrobial susceptibility testing, both the bacterial strains *Escherichia coli* and *Staphylococcus aureus* were found to be sensitive towards the ethanolic and water extracts of *Clitoria ternatea* flowers.

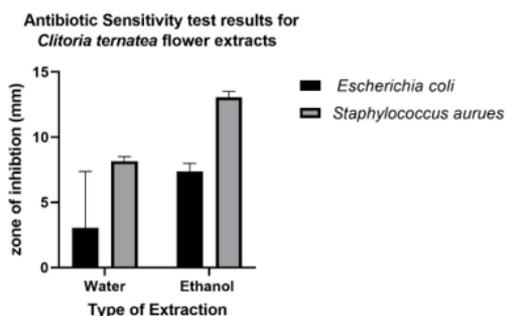


Figure 01: Antibacterial effect of *Clitoria ternatea* on *Staphylococcus aureus* and *Escherichia coli*

Table 01: Paired t-test for *Clitoria ternatea*

Paired t- test	
P value	0.0362
P value summary	*
Significantly different ($P < 0.05$)?	Yes
One- or two-tailed P value?	Two-tailed
T, df	T=17.59, df=1
Number of pairs	2
Amount of difference	
Mean of differences (B - A)	5.408
SD of differences	0.4349

DISCUSSION

In this study, the water extraction of and ethanolic extract *Clitoria ternatea* flowers were resulted in a final volume which was slightly lesser than previous studies. Samples and the harvest location which would result in variations in amount of essential extract present. Moreover, the climate conditions, soil properties are depending simultaneously (Semmar, Noura and Farman, 2011). Moreover, the climate conditions, soil properties are depending simultaneously, as these samples were collected from two different province in Sri Lanka which having different climate conditions and soil properties (Weerasinghe and Iqbal, 2011). Even the study scenarios were unable in Sri Lanka, related with *Clitoria ternatea*, there might be a relationship since the temperature and the sunlight have the effect of the synthesis of anthocyanins (Jamil et al., 2018).

The Paired t-test results of this study revealed the plant extract of *Clitoria ternatea* showed a significant variation in inhibitory activity between the two bacterial species and between the two distinct extraction methods, with a P value less than 0.05, as shown in figure 01 and table 0.1. The structure differentials of the cell wall in gram negative and gram-positive bacteria causes variances in

susceptibility features to antimicrobial substances (Lee et al., 2019). Expected results will be analyzed under further studies. Accordingly, these observed results were enough to support alternative hypothesis as the presence of antibacterial properties was not randomized.

The solubility of bioactive ingredients and potential for artifact generation all play a role in solvent selection. (Rossiter, Fletcher and Wuest, 2017). The enlargement of the plant matrix by the water causes increased contact between the surface area of the plant material and the solvent. However, high-concentration alcohol, such as grain alcohol with a concentration of 95%, should be avoided since it contains toxic substances (Rojas-Sandoval, 2016).

The temperature at which the extractable yield is extracted is also a significant determinant. The increase in extraction with increasing temperature is most likely owing to increased molecular agitation. (Campbell, Pearson and Marble, 2019). However, heat stability features of anthocyanins must be concerned. Finally, further investigations must be done, since the several errors occurrence and the less accuracy of minimum database in this study.

CONCLUSIONS

In this study, the plant extracts of *Clitoria ternatea* were obtained by hydro distillation and ethanolic Soxhlet extraction. Yields of obtained essential extracts and their antibacterial properties were in relative agreement to studies carried out previously. Based on the observed results, ethanolic extracts of *Clitoria ternatea* showed the best antibacterial activity against the *Staphylococcus aureus* more than *Escherichia coli* and the water extracts were given much less action. These variations can be due to anthocyanin consistency since the anthocyanins have the potent of antibacterial properties on microorganisms.

Further Work

Treating Gram-negative bacterial infections can be difficult because of several unique features of these bacteria as like the cell wall structure become resistant to most antibiotics. “Trojan horse strategic antibiotic drug designing” is one method that leads in present to achieve this (Schalk, 2018). New drugs to combat Gram-negative bacterial infections are needed. According to that, the results of this study and further studies must be done and their effectiveness can be beneficial for the antibiotic drug designing.

Acknowledgement

Hereby I would love to pay my sincere gratitude to my project supervisor, Mrs. Supeshala Kothalawala and co-supervisor Mrs. Sithara Dissanayake for the tremendous support which given , whenever I was needed. Furthermore, I would like to thank to all the lecturers at the BMS for guided me throughout my university period. Thank you!

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IDENTIFICATION OF E.COLI IN DRINKING WATER SAMPLES IN JAFFNA (VALIKAMAM, WEST) AREA AND DETECTION OF ANTIBIOTIC RESISTANCE

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ABSTRACT

Every year, 1.8 million people worldwide lose their lives due to the exposure to different pathogens in drinking water and foods. Many disease-causing bacteria, especially *Escherichia coli* (*E.coli*), have acquired resistance genes, which make antibiotic treatment ineffective. According to the retrospective study in Jaffna, 4% of cases are found with diarrheal illnesses. Therefore, ten samples of drinking water were collected from protected and unprotected wells in the Valikamam west area of Jaffna. *E. coli* was identified through membrane filtration in HiCrome *E.coli* agar, the isolated colonies were subjected to Gram staining, and biochemical tests. The molecular identification was done targeting 16S rRNA, *uidA* and *lacY* genes using PCR. Further, the antibiotic resistance towards tetracycline (30 µg), sulphonamide (300 µg), and vancomycin (8 µg) was analysed for the selected colonies of *E. coli* by using Kirby-Bauer disk diffusion test. Based on the disk diffusion test results, molecular detection was done for tetracycline targeting genes *tetA* and *tetC* by PCR. Out of 10 samples, five samples with bluish green colonies, and two samples with opaque colonies were selected from membrane filtered plates. The antibiotic susceptibility test was conducted on the following five colonies collected from a school in Chulipuram and from residential areas of Moolai and Pannagam, all five showed tetracycline and vancomycin resistance but sensitive to sulphonamide. Except a Moolai sample other four indicated only *tetA*-resistant gene. The presence of coliforms and other pathogenic organisms, as well as acquired antibiotic resistance genes, could jeopardize the health of community members. This also highlights the nature of water quality and multi-drug resistant bacteria in Valikamam, West Jaffna area.

Keywords: Antibiotic resistance, *Escherichia coli*, Tetracycline, Polymerase Chain Reaction

PROTEIN ENRICHMENT OF YOGHURT USING SEAWEED EXTRACTS

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ABSTRACT

Seaweed is considered a superfood and is extensively used as a nutritious ingredient in the global food industry. In Sri Lanka, yoghurt containing seaweed extracts is not produced commercially; hence, an initiative was taken through this project. The present study was conducted to develop a novel variety of gelatin-free yoghurt enriched with protein using seaweed extracts, thereby aspiring to widen the consumer audience. This study investigated the nutritional composition of *Arthrospira platensis* (spirulina) and *Gracilaria edulis* (red algae). Spirulina was chosen as the nutritional enhancer due to its high protein content while red algae was used as the gelling agent. Development of the enriched yoghurt with prepared seaweed extracts was carried out on the basis of the best ratio of extraction, with the highest protein content and best gelling property. The protein content of 16 different combinations of seaweed yoghurt containing spirulina (0.0%, 0.1%, 0.2% and 0.3%) and red algae (0.0%, 1.0%, 2.0% and 3.0%) was compared against 6 commercially available yoghurt using the Lowry protein assay. Microbiological analysis confirmed seaweed extracts do not inhibit bacterial growth. Statistical analysis revealed using spirulina resulted in the production of significantly enriched yoghurt with higher protein content, while red algae proved to be a suitable substitute for gelatin. The highest protein content was observed in the 12th combination incorporating 0.3% spirulina and 2.0% red algae. Compared to commercially available yoghurt, seaweed yoghurt is certified to contain sufficient amount of protein to notably enhance human health.

Keywords: Yoghurt, Spirulina, Red algae, Protein content, Lowry protein assay

IDENTIFICATION OF LACTOBACILLUS FROM SET YOGHURT SAMPLES AND DETERMINATION OF THEIR ACID TOLERANCE ACTIVITY

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ABSTRACT

Lactobacillus, the most commonly used probiotic live bacteria in the dairy industry, that have health benefits to the host when consumed in sufficient concentrations. The aim of this study was to identify lactobacillus from set yoghurt samples and to determine their acid tolerance activity. Lactobacillus was isolated from five set yoghurt samples cultured on MRS agar and subjected to Grams staining and catalase test. The identified isolates were then sub-cultured in MRS broth. DNA was extracted by boil cell and kit-based methods followed by quantification, presumptive lactobacillus was further identified by PCR. Then the acid tolerance activity of the bacterial isolates was assessed. Creamy/white, shiny, mucoid colonies having an entire margin with flat, raised and convex elevations observed on MRS agar, purple rod-shaped bacteria observed under Grams staining and no oxygen bubble formation was observed in catalase test indicating catalase negative. The biochemical test results confirmed that all the samples contained lactobacillus. Higher DNA concentration was obtained via boil cell method compared to kit method. PCR products were obtained for all the samples which further confirmed the presence of lactobacillus. Acid tolerance activity assay indicated no significant difference in survival of lactobacillus between 0 hours and 3 hours incubation at pH 3.0 indicating lactobacillus a has good acid tolerance activity. In conclusion, lactobacillus bacteria from all samples survived at pH3.0 confirming acid tolerance property. Incorporating acid tolerant lactobacillus into food products may enhance health benefits.

Keywords: Probiotics, yoghurt, Lactobacillus, Biochemical characterization, Acid tolerance activity

**INFLUENCE OF COVID_19 GLOBAL CRISIS ON MENTAL AND BEHAVIOURAL
CHANGES BETWEEN AGE 14-19 AND ITS PROBABLE LONG-TERM IMPACT
ON THE FUTURE AT A LEVEL OF CLINICAL SIGNIFICANCE**

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ABSTRACT

The biggest public health challenge that humans faced in the current century is COVID-19 which is an infectious disease. It created a pandemic and influenced the lifestyle of all the people. There were 182,319,261 confirmed coronavirus patients and 3,954,324 deaths worldwide have been reported in March 2020. This pandemic disrupted education systems affecting nearly 1.6 billion learners in more than 200 countries and more than 94% of the world's student population. This study aim was to identify the influence of the COVID-19 global crisis on mental and behavioural changes in individuals between the ages of 14 – 19 adolescents and its probable long-term impact on the future at a level of clinical significance. The methodology used was quantitative and the questionnaire was developed based on the literature survey findings on influence factors of school children's mental and behavioural changes due to the COVID-19 global crisis. The convenience sampling method was used in data collection and questionnaire was shared among school children through relations and friends. The most significant findings of this research were that majority of respondents suffer from anxiety and depression while their physical activities and eating patterns have changed drastically. The lack of socialization has influenced the weight management which has negative effects on self-esteem and cognitive development. This research finding suggests that the COVID-19 global crisis has influenced the adolescents' mental and physical behaviours which can cause long term effects on their health. Therefore, it is very important to address this isolation and less socialization issue among adolescents and find solutions to provide a better lifestyle.

Keywords: COVID-19, Mental, Behavioral, anxiety, depression

**INFLUENCE OF COVID-19 GLOBAL CRISIS ON MENTAL AND BEHAVIOURAL
CHANGES IN INDIVIDUALS BETWEEN AGES 20-35 AND ITS PROBABLE
LONG-TERM IMPACT ON THE FUTURE AT A LEVEL OF CLINICAL
SIGNIFICANCE**

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ABSTRACT

The outbreak of COVID-19 has had a global impact on the world and has posed an unprecedented challenge to the human in almost every aspect of life including behavioural and mental changes. All of us have been affected by the current pandemic; however, its impact and consequences are felt differently depending on our role as individuals of different human developmental stages in society. It is difficult to transform or adapt quickly to the sudden changes happening around us due to the ongoing crisis. The most affected life stage is early adulthood which is comprised of mostly students in the tertiary education system. It is one of the most peak stages for several psychological disorders. COVID-19 pandemic posed novel and more difficult challenges (radical shift to virtual online learning, loss of social interaction due to social isolation, financial issues to the extent of jeopardising the education etc...) to the students apart from the usual academic and transitional stressors. There are chances for a greater extent for these changes to have a long-lasting impact, in terms of mental and physical health, and a higher risk for these problems to progress into clinical conditions. This research was based on a survey using a questionnaire that emphasized the mental parameters such as anxiety, depression, threat perception, emotional, self-concept and, behavioural parameters such as sleep, physical activity, eating habits, socializing and weight management among students aged 20-35 in the tertiary education system, and their probable impact in the future at a level of clinical significance.

Keywords: COVID-19, young adults, mental health, physical health, clinical conditions

IDENTIFICATION OF LACTOBACILLUS FROM SET YOGHURT SAMPLES AND DETERMINATION OF THEIR ANTIOXIDANT ACTIVITY

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ABSTRACT

Probiotic bacteria *Lactobacillus* is a non-pathogenic and a live bacterium which is mostly used in the dairy industry to confer health benefits on human hosts when consumed in adequate quantities. The aim of this study was to isolate *Lactobacillus* from yoghurt and to determine their antioxidant activity. Five yoghurts were cultured on MRS agar and subjected to biochemical tests (Gram staining and catalase test). This was followed by DNA extraction from *Lactobacillus* using boiled cell and kit-based method and then quantified using spectrophotometry. Then PCR was carried out to further identify *Lactobacillus*. Thereafter, antioxidant activity of *Lactobacillus* was determined by DPPH assay. Creamy white and mucoid colonies having an entire margin with flat, raised, and convex elevations observed on MRS agar, purple rod-shaped bacteria observed during Gram staining, and no oxygen bubbles formed during catalase test confirmed the presence of *Lactobacillus*. DNA concentration of boiled-cell method was not significantly higher than kit-based method. In DPPH assay the purple solution with DPPH turned light yellow after 30 minutes incubation in dark condition. The scavenging activity of cell intact was slightly higher than cell free. The results obtained from ANOVA test confirmed that there was no significant difference observed in antioxidant activity between cell free and cell intact. In conclusion, the biochemical tests and the PCR confirmed that all five samples contained *Lactobacillus* and all the bacteria carry antioxidant activity. Our findings could guide the dairy industry to improve and develop new probiotic products and help in treating oxidative induced disease conditions.

Keywords: Probiotics, Yoghurt, *Lactobacillus*, DPPH, Cell-free, Cell-intact

**INFLUENCE OF COVID-19 GLOBAL CRISIS ON MENTAL AND BEHAVIOURAL
CHANGES IN INDIVIDUALS BETWEEN AGES 65-70 AND IT'S PROBABLE
LONG-TERM IMPACT ON THE FUTURE AT A LEVEL OF CLINICAL
SIGNIFICANCE**

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ABSTRACT

In the span of two decades, the world has witnessed three highly pathogenic and fatal coronaviruses transmissible to humans, they are the SARS-CoV, MERS-CoV and SARS-CoV-2 (COVID-19) out of which the latter has infected millions worldwide and has spread rapidly to many parts of the world considering its predecessors. The Impacts of COVID-19 has influenced many sectors of Society may it be health wise or economically. Among the numerous strata's of society the elderly have been categorized as the most vulnerable group economically and health wise. This research has used a web-based questionnaire, which was circulated among a limited group of 65 individuals in order to probe into the changes in the lifestyles of the elderly between the ages of 65-70 due to COVID-19 lockdowns, control measures and restrictions and their far reaching effects and consequences on this age group, in a clinical aspect, predicting the possible future diseases and consequences of COVID-19 mitigating measures, with the support of peer reviewed journal articles and responses received via the web-based questionnaire. The effects were analysed along two main aspects namely, mental and behavioural, using 5 parameters under each category stand in order to understand the future clinical aspects that can be anticipated upon classifying the data obtained into percentages and graphs. As most of the information on the far-reaching consequences of COVID-19 are yet to be fully understood, using this data preventative measures could be enforced in order to prevent premature death and many neurological diseases.

Keywords: SAR-CoV-2, COVID-19, Lock-down, Elderly, Consequences

DETERMINATION OF ANTIBACTERIAL ACTIVITY OF LACTOBACILLUS IN YOGURT DRINK SAMPLES

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ABSTRACT

Probiotics are live bacteria that provide health benefits to the host when consumed in required amounts. Lactobacillus is the commonest genus of probiotic organism found in most of the fermented foods and dairy products. This project was intended to isolate Lactobacillus from the commercially available yogurt drink samples and to estimate the antibacterial activity. The process was initiated by culturing five different yogurt drink samples on MRS agar and the presence of pure Lactobacillus colonies was identified by biochemical tests. Afterwards the antibacterial activity against Escherichia coli and Staphylococcus aureus was detected using well-diffusion method for Lactobacillus cell-intact and cell-free samples. According to the results, a proper bacterial growth was observed in all five samples on MRS agar but the biochemical tests confirmed the presence of Lactobacillus only in four samples. According to the comparison between the results obtained from the antibacterial activity against Escherichia coli and Staphylococcus aureus were confirmed as statistically significant (p-value < 0.05). Two samples showed the highest antibacterial activity against Escherichia coli whereas only one sample against Staphylococcus aureus. Knowledge gained from this study is useful in developing treatments for infectious diseases.

Keywords: Probiotics, Lactobacillus, Yogurt, Antibacterial activity

PREVALENCE AND ASSOCIATED FACTORS FOR LOWER BACK PAIN AMONG PROFESSIONAL BUS DRIVERS

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ABSTRACT

Lower back pain (LBP) is one of the commonest causes of morbidity and has a significant social, economic and health impact. Making the identification LBP prevalence and the associated factors a current global necessity. Studies show that professional drivers are at an increased risk for LBP due to exposure to whole body vibration, shocks and jolts, prolonged sitting, and postural factors. This study will help identify the prevalence of LBP in this professional group and the risk factors related. Study followed an analytical cross sectional study design. Data was collected through an interviewer administered questionnaire from 140 participants. Out of which 39.3% (n=55) complained of lower back discomfort, 40.7% (n=57) complained of lower back pain, 27.1% (n=38) suffered from lower back stiffness and 17.9% (n=25) had lower back tenderness during the past 12 months. Medical related absenteeism was also found in drivers suffering from LBP, 15% (n=21) of the drivers were absent from work for between 1-7 days and 2.1% (n=3) for more than 30 days. A statistical significant relationship was found between age ($p=0.035$) and number of driving hours per day ($p=0.010$) with the presence of lower back discomfort during the past 12 months. Measures should be taken to initiate awareness programs for the bus drivers to improve their back discipline and back issues arising from poor posture. Making the steering wheels and driving

seats adjustable should be taken into consideration as well.

Keywords: Lower back pain, Drivers

INTRODUCTION

Lower back pain is one of the commonest causes of morbidity and has a significant social, economic and health impact on the individuals affected. 60-80% of global adult population experience Lower Back Pain (LBP) at some point of their life. LBP is one of the commonest causes for absenteeism, hospitalizations, medical consultations and surgical interventions among the working population (Ganesan, S., Archarya, A.S., Chauhan, R. & Acharya, S (2017). Prevalence and risk factors for lower back pain in 1355 young adults, A cross sectional study, Asian spine journal, 11(4), 610-617). This number has been on the rise for the past decade and now it is at a stage where it's affecting the productivity and efficiency of the work force.

According to previous studies, 40-60% of the adult working population suffer from LBP in the western setting (Dunn, K.M., Hestback, L. & Cassidy, J.D (2013). Low back across the life course, Research Clinical Rheumatology, 27 (5), 591-600: Froud, R., Patterson, S., & Eldridge S. (2014). Systemic review and metasynthesis of impact of low back pain in people's lives, British Medical Journal, 15, 50). Data of an Asian population on the subject is not very common. In the

available studies it's concluded that LBP rates are higher in low income countries than in high income countries. According to research statistics LBP prevalence in low income countries is higher among urban populations than among rural populations. (Earnest, V. (1997.) The epidemiology of LBP in rest of the world: A review of surveys in low and middle income countries, *Spine*, 22(15), 1747-1754).

LBP is one of the disorders having a high economic impact among the working population across the world. Within the total workforce, several studies have shown that professional drivers are at increased risk of developing lower back pain compared to the rest of the population (Robb, M. & Mansfield, N (2007). Self-reported musculoskeletal problems amongst professional truck drivers, *Ergonomics*, 50(6), 814-827). Studies show that professional drivers are at an increased risk for low back pain and injury due to a range of reasons including whole body vibration, shocks and jolts, prolonged sitting, and postural factors. Prevalence rates of lower back pain have been found to include 81% of bus drivers, 60% of truck drivers and 51% of taxi drivers. (Robb, M. & Mansfield, N (2007). Self-reported musculoskeletal problems amongst professional truck drivers, *Ergonomics*, 50(6), 814-827).

Sri Lanka as a developing country uses the public transportation system as its key mode of transportation, in which long distance bus rides play a main role. The country has a large number of professional bus drivers. However, Sri Lankan or South Asian studies are scarce on the current topic. So this study plans to assess the prevalence of lower back symptoms, mainly focusing on lower back pain, lower back stiffness and lower back tenderness with related risk factors, in professional bus drivers, a professional group that has been identified as one of the high risk occupational groups for LBP. This study

also focuses on assessing the predisposing factors that assist in increasing the prevalence of LBP in the target group in order to be able to diagnose early and prevent the chronicity of the pain and thereby achieving better quality of life.

METHODOLOGY

This study followed a descriptive cross sectional study, with the participation of 140 professional bus drivers. There were around 1500 employees in the selected study settings, using a convenient sampling method 140 were identified as the study sample. Data was collected through an interviewer administered questionnaire. The questionnaire collected participants' socio-demographic data, medical history, surgical history, data on LBP and other symptoms, level of physical activity affecting lower back pain. Descriptive analytical methods, correlation, chi square and T test was used to analyze the data.

RESULTS

This study focused on identifying the prevalence of lower back pain (LBP) among professional bus drivers. The sample included 140 male bus drivers between the ages of 23 and 58 years. The mean and standard deviation of the age of the participants was 39 ± 7.85 years. Majority of the participants (51.4%) were between the ages of 36-45 years.

Majority of the drivers ($n=60$, 42.7%) were long distance drivers, driving a distance of 130-299 km (213.71 ± 34.90). Others ($n=50$, 35.6%) drove a shorter distances of 10-59 km (28.24 ± 15.51).

Within the study population, the mean of the number of years working as a professional driver was 12 ± 10.26 years. A significant 82.9% ($n=116$) of the drivers in the study sample had a driving shift of more than 8 hours per day on an average

working day. Majority of the study population (n=91,65%) had a driving time between 50-100 hours per week.

Out of the total study population (n=140), 40.7% (n=57) complained of lower back pain, 27.1% (n=38) suffered from lower back stiffness and 17.9% (n=25) had lower back tenderness during the past 12 months.

Out of the 40.7% (n=57) of the study population who suffered from lower back pain, 64.9% (n=37) had pain episodes lasting for less than 30 minutes, 14% (n=8) had pain lasting between 30-90 minute and a significant 21% (n=12) had pain lasting for more 120 minutes.

Out of the study population who suffered from LBP (n=57), 36.8% (n=21) suffered from acute LBP with pain lasting for less than 6 weeks, 17.5% (n=10) had sub-acute LBP having pain for 6-12 weeks, 45.6% (n=26) suffered from chronic LBP with pain lasting longer than 12 weeks.

The study found that LBP directly affects productivity and efficiency of the drivers, 7.9% (n=11) of the drivers who suffered from LBP had to change their duties due to their condition and 12.9% (n=18) had to change their professional, personal and leisure activities due to back pain. Medical related absenteeism was also found in drivers suffering from LBP, 15% (n=21) of the drivers were absent from work for between 1-7 days of work due to LBP and 2.1% (n=3) were absent from work for more than 30 days of work during the course of their lower back pain. Only 18.6% (n=26) of the drivers who suffered from LBP had sought medical care for their LBP, out of which 2.9% (n=4) had to be hospitalized for treatment for LBP. Within the group of drivers who sought medical care the majority (12.1%, n=17) got treatment from a medical doctor and 3.6% (n=5) sought auyurvedic treatments.

Through the analysis of the data, a statistically significant relationship was

found between driving distance and pain in lower back (p=0.031), stiffness in lower back in (p=0.035) and tenderness in the lower back (p=0.049) among the drivers in the sample.

The analysis found a statistically significant relationship with the number of driving hours per day and the presence of lower back pain during the past 12 months (p=0.010). No statistically significant relationship was found number of driving hours per day and lower back stiffness (p=0.347) or lower back tenderness (p=0.365).

A statistically significant association was found between the presence of lower back stiffness with employment duration (P=0.022) among professional bus drivers. No statistically significant relationship was found between employment duration and the presence of tenderness in lower back (p=0.555) or presence of lower back pain (p=0.265).

DISCUSSION

This study found a 40.71% (n=57) prevalence of LBP among the bus drivers. These findings are in line with existing literature which has found that drivers are more susceptible to postural pain in any part of spine, furthermore professional drivers are at a higher risk for developing LBP. (Najenson, D., Santo, Y. & Masharawi, M. (2010). Low back pain among professional bus drivers: ergonomic and occupational-psychological risk factors, *Israel medical association journal*, 12, 26-31; Tamrin, S.B.M., Yokoyama, K. & Jalaludin, J (2007) The association between risk factors and LBP among commercial vehicle drivers in peninsular Malaysia, A preliminary result, *Industrial health*, 45(2), 268-278). A study conducted in India shows a 70.8% of LBP prevalence among public transport bus drivers, compared to the 51.6% prevalence of non-drivers (Jadhav, A.V. (2016). Comparative cross

sectional study for understanding the burden of LBP among public bus transport drivers, *Indian journal of occupational and environmental medicine*, 20(1), 26-30).

The prevalence identified in this study is lower than the prevalence found in several international studies; it's in line with a Sri Lankan study which found different occupational groups can have different LBP prevalence ranging from 12-30% depending on their profession (Warnakulasuriya, S.S.P., Peiris, R.J., Coggon, D., Ntani, G. & Sathiakumar, N (2012). Musculoskeletal pain in four occupational populations in Sri Lanka, *Occupational Medicine*, 62 (4), 269-272). Existing data suggested that LBP was more prevalent among long distance bus drivers (Miyamoto, M., Shirai, Y., Nakayama, Y. & Gembun, Y (2000). An epidemiological study of occupational LBP in truck drivers, *Journal of nippon medical school*, 67(3), 186-190), this may be due to the fact that the long distance drivers face more traffic congestion, irregular working shifts and shorter break periods which have been identified as risk factors for high prevalence of LBP (Miyamoto, M., Shirai, Y., Nakayama, Y. & Gembun, Y (2000). An epidemiological study of occupational LBP in truck drivers, *Journal of nippon medical school*, 67(3), 186-190). This study also found a statistically significant relationship between LBP and the driving distance.

Few previous studies have determined the most at risk group for LBP to be between 30-50 years (Hakim, S & Mohsen, A (2017). Work related and ergonomic risk factors associated with LBP among bus drivers, *Journal of Egyptian public health association*, 92(3), 195-201). This study found the similar result out of the group of bus drivers who complained of LBP 52% were above 40 years of age. Also this study found a statistical significant relationship between age groups and LBP during the past 12 months ($p=0.035$). These findings are in

line with the previous study findings. These findings might be due to the physical changes in the body with age which makes the lower back more prone to over use and degenerative injuries leading to lower back pain and discomfort.

Studies have found that high prevalence of LBP had a relationship with service duration more than 10 years (Hakim, S & Mohsen, A (2017). Work related and ergonomic risk factors associated with LBP among bus drivers, *Journal of Egyptian public health association*, 92(3), 195-201). Majority (23.6%) of the study population have been working as drivers for between 10-14 years. This study found a statistically significant relationship between employment duration and lower back stiffness. These findings are in line with previous study findings which have found prolonged exposure to whole body vibration was causing LBP and other lower back related symptoms (Bovenzi, M., Riu, F. & Negro, C. (2006). An epidemiological study of LBP in professional drivers, *Journal of sound and vibration*, 298(3), 514-539), and the symptoms were related to vibration dose, vibration magnitude, duration of exposure/years of service.

CONCLUSION

The study found that professional bus drivers have a considerable prevalence for LBP and it's affected by age, driving distance and number of driving hours per day.

However, no objective measurements of the pain were taken during the study. Objective physical assessment including measuring the strength and flexibility of core muscles and lower limb muscles will provide a better overall picture of the nature and the cause of pain. This study targeted a study population of 200 professional bus drivers and 140 drivers responded at a response rate of 70%. A larger sample size would give a better

understanding of the population and the prevalence of LBP.

Based on the findings, measures should be taken to initiate awareness programs for the bus drivers to improve their back discipline and back issues arising from poor posture. Making the steering wheels and driving seats adjustable should be

taken into consideration. Adding a screening test to identify LBP during the mandatory medical examinations and making relevant referrals for treatment and awareness programs on proper preventive measures Eg: suitable exercise programs and necessary posture correction is also recommended.

WORK RELATED PSYCHOLOGICAL FACTORS AMONG PROFESSIONAL BUS DRIVERS AND THEIR EFFECT ON LOWER BACK PAIN

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ABSTRACT

Literature on the effects of psychological risk factors on the prevalence of LBP shows that work related stress, job dissatisfaction and lack of job support, tension, anxiety, depression, anger, hostility from colleagues and passengers can lead to a higher LBP prevalence. The high prevalence of LBP, frequent exacerbations, impaired spinal functions lead to increased disability rate. This leads to considerable economic loss to the individual as well as the community. Exposure to professional car driving is associated with associated with increased absence from work due to LBP. Study followed an analytical cross sectional study design. Data was collected through an interviewer administered questionnaire from 140 participants. Out of a sample of 140 participants 5% (n=7) were feeling stressed at work, 5.7% (n=8) felt dissatisfied at work. 12 participants, (8.6%) found their work monotonous, 10 (7.2%) felt time pressure at work, 5.8% (n=8) felt no support from co-workers, 4.3% (n=6) felt that they were unable to cope with the demands from work. The study found a statistically significant relationship between the presence of LBP with feeling stressed at work (p=0.000) and feeling dissatisfied with work (p=0.042). The study found no statistically significant relationship between the presence of LBP and finding work monotonous (p=0.82) among professional bus drivers.

This study will help to identify the prevalence of LBP in a high risk occupational group and the psychological risk factors related. The findings will in turn be helpful in introducing preventive measures to reduce the incidence of LBP.

Key words: Work related psychological factors, Lower back pain, Professional drivers

INTRODUCTION

LBP is the main cause of absenteeism among drivers. The drivers' number of leave days and hospital admitted days were less even though they complained of higher intensity of LBP, indicating that they get less recovery time and higher chance of relapse. (Jadhav, A.V. (2016) Comparative cross sectional study for understanding the burden of LBP among public bus transport drivers, Indian journal of occupational and environmental medicine, 20(1), pp.26-30). The high prevalence of LBP, frequent exacerbations, impaired spinal functions lead to increased disability rate (Bagirova, G.G & Ignatcheva, N.V (2001) Prevalence and risk factors of the lower back syndrome in automobile drivers, Terapevticheskii Arkhiv, 73(1), pp.30-33). This leads to considerable economic loss to the individual as well as the community. Exposure to professional car driving is associated with associated with increased absence from work due to LBP (Porter, J.M & Gyi, D.E (2002),

Prevalence of musculoskeletal troubles among car drivers, *Occupational medicine*, 52(1), pp.4-12). With all these adverse effects LBP leads to restrictions social and professional life.

Available literature on the effects of psychological risk factors on the prevalence of LBP shows that work related stress, job dissatisfaction and lack of job support, tension, anxiety, depression, anger, hostility from colleagues and passengers can lead to a higher LBP prevalence. (Tamrin, S.B.M., Yokoyama, K. & Jalaludin, J (2007), The association between risk factors and LBP among commercial vehicle drivers in peninsular Malaysia, A preliminary result, *Industrial health*, 45(2), pp.268-278 ; Najenson, D., Santo, Y. & Masharawi, M. (2010) Low back pain among professional bus drivers: ergonomic and occupational-psychological risk factors, *Israel medical association journal*, 12, pp.26-31 ; Bovenzi, M., Riu, F. & Negro, C. (2006) An epidemiological study of LBP in professional drivers, *Journal of sound and vibration*, 298(3), pp.514-539). Previous studies have also identified that public transport drivers are highly stressed during their daily driving course due to various working conditions (Gangopadhyay, S. & Dev, S. (2012) Effects of lower back pain on social and professional life of drivers in Kolkata, *Work*, 41, pp.2426-2433). Studies have found that psychological factors were related to the onset of pain, acute, subacute and chronic pain and pain behavior. Psychological factors have been found to play an important role in treatment failure in LBP and in making acute pain chronic (Shelerud, R.A. (2006) Epidemiology of occupational back pain, *Clinics in occupational and environmental medicine*, 5(3), pp.501-528).

METHODOLOGY

This study followed a descriptive cross sectional study, with the participation of 140 professional bus drivers. There were around 1500 employees in the selected study settings, using a convenient sampling method 140 were identified as the study sample. Data was collected through an interviewer administered questionnaire. The questionnaire collected participants' socio-demographic data, data on LBP and other symptoms, Data regarding stress at work, feeling dissatisfied and monotonous work, feeling pressured for time, unsupported and inability to cope with work was collected from the study population. Descriptive analytical methods, correlation, chi square and T test was used to analyze the data.

RESULTS

Out of a sample of 140 participants 5% (n=7) were feeling stressed at work, 5.7% (n=8) felt dissatisfied at work. 12 participants, (8.6%) found their work monotonous, 10 (7.2%) felt time pressure at work, 5.8% (n=8) felt no support from co-workers, 4.3% (n=6) felt that they were unable to cope with the demands from work.

The study found a statistically significant relationship between the presence of LBP with feeling stressed at work ($p=0.000$) and feeling dissatisfied with work ($p=0.042$). The study found no statistically significant relationship between the presence of LBP and finding work monotonous ($p=0.82$) among professional bus drivers. The study found no statistically significant association between the presence of LBP and feeling time pressure at work ($p=0.311$). The study found no statistically significant relationship between the presence of LBP and feeling no support from co-workers ($p=0.146$). The study found no statistically significant relationship between the presence of LBP and feeling inability to

cope with work (p=0.65), among professional bus drivers.

	Feel Stressed at work		Feel dissatisfied with work		Find work monotonous		Feel time pressure at Work		Feel no support from co-workers		Feeling Unable to cope with work demands	
	Frequency (Fr) and Percentage (%)											
	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%
Not applicable	93	66.4%	103	73.6%	104	74.3%	105	75%	114	81.4%	114	81.4%
Apply to some degree, some of the time	40	28.6%	29	20.7%	24	17.1%	25	17.9%	18	12.9%	20	14.3%
Apply to a considerable degree, good part of the time	4	2.9%	6	4.3%	8	5.7%	6	4.3%	4	2.9%	4	2.9%
Apply very much, most of the time	3	2.1%	2	1.4%	4	2.9%	4	2.9%	4	2.9%	2	1.4%

Table 31: Psychological factors in professional drivers

DISCUSSION

Self-perceived job stress, job dissatisfaction and lack of job support showed a marginal relation to prevalence of LBP (Bovenzi, M., Riu, F. & Negro, C. (2006) An epidemiological study of LBP in professional drivers, Journal of sound and vibration, 298(3), pp.514-539). Tension, anxiety, depression, anger, hostility from colleagues (Tamrin, S.B.M.,

Yokoyama, K. & Jalaludin, J (2007), The association between risk factors and LBP among commercial vehicle drivers in peninsular Malaysia, A preliminary result, Industrial health, 45(2), pp.268-278). limited rest during work, traffic congestion on route, lack of accessibility to bus stop, passenger hostility and supervisor ratings (Najenson, D., Santo, Y. & Masharawi, M. (2010) Low back pain among professional bus drivers:

ergonomic and occupational-psychological risk factors, Israel medical association journal, 12, pp.26-31) contributed towards a high prevalence of LBP. Work loss from LBP was considerably influenced by perceived job stress (Magnusson, M.L., Pope, M.H., Wilder, D.G. & Areskoug, B. (1996) Are occupational drivers at an increased risk for developing musculoskeletal disorders, Spine, 21(6), pp.710-717). During the course of their daily drive majority of the bus drivers are highly stressed due to hazardous working conditions and it affect their health and overall work performance. Studies have found that job satisfaction, monotonous tasks, work relations, demands, stress, and perceived ability to work were related to future back pain problems (Gangopadhyay, S. & Dev, S. (2012) Effects of lower back pain on social and professional life of drivers in Kolkata, Work, 41, pp.2426-2433)

This study found similar results on self-reported stress, time pressure and lack support from co-workers among the study population. Out of the study population 33.6% reported feeling stressed at work, 26.4% felt dissatisfied with work, 25.1% reported feeling time pressured at work and 26.8% felt a lack of support from co-workers. Also the study found a statistically significant relationship

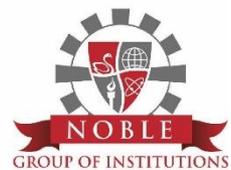
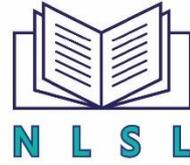
between the presence of LBP and self-reported work related stress and dissatisfaction with work.

CONCLUSION

Prevention of work-related stress, organizational changes to reduce stress, improving seat comfort and encouraging regular exercise and sports activity can be used as preventive strategies. An improvement in working conditions will reduce the incidence of LBP to some extent as well as scheduling changes of the duty shifts to address the psychological risk factors leading to LBP.

Even though LBP is common among the general adult population, some occupational groups pose a higher risk for it. Identifying these groups will reduce the burden of their suffering. Physical fitness and spinal support muscle fitness have been identified to protect against future occurrences of LBP. This study will help to identify the prevalence of LBP in a high risk occupational group and the psychological risk factors related. The findings will in turn be helpful in introducing preventive measures to reduce the incidence of LBP.

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