IRSSSH2024

"Advancing Multidisciplinary Research for Sustainability"

17th December 2024

THE PROCEEDINGS OF
INTERNATIONAL RESEARCH SYMPOSIUM ON SOCIAL SCIENCES AND HUMANITIES

Extended Abstracts

FACULTY OF SOCIAL SCIENCES AND HUMANITIES
RAJARATA UNIVERSITY OF SRI LANKA - MIHINTALE

1st International Research Symposium
Faculty of Social Sciences and Humanities
Rajarata University of Sri Lanka

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Mihintale - Sri Lanka
2024

1st International Research Symposium
Faculty of Social Sciences and Humanities
Rajarata University of Sri Lanka

IRSSSH 2024

Symposium Proceedings

ISSN 3051-5629

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Page layout by:
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Published by:
Faculty of Social Sciences and Humanities,
Rajarata University of Sri Lanka,
Mihintale, Sri Lanka.

Tel/Fax: +94-25-2266788
Web: https://fssh.rjt.ac.lk/index.php/contact/
Email: irsssh@ssh.rjt.ac.lk

Printed by:
THE CLI-MAX Printers, NO: 561/81, New Town, Anuradhapura.

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Message of the Vice Chancellor

Rajarata University of Sri Lanka



It is with great intellectual fervor and institutional pride that I write my thoughts on the **First International Research Symposium on Social Sciences and Humanities (IRSSSH 2024)**, organized by the Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka, and convened under the pivotal theme of Advancing Multidisciplinary Research for Sustainability.

This symposium embodies Rajarata University's commitment to addressing the multifaceted challenges of our era, which transcend disciplinary boundaries and demand interdisciplinary approaches. It highlights the urgency of fostering collaborative research paradigms to interrogate the complexities of sustainability and envision transformative pathways toward equitable solutions. As a vibrant platform, this event brings together scholars, researchers, and practitioners to share insights, explore synergies, and advance solutions to pressing global issues.

As the Acting Vice-Chancellor of the university, I am deeply encouraged by the scholarly rigour and creative vision of this distinguished platform. Your collective contributions exemplify the intellectual vibrancy and critical inquiry that are essential for addressing the pressing requirements of our time. I wish to convey my profound gratitude to the organizing committee, the academic and non-academic staff, and our distinguished partners for their steadfast commitment and meticulous efforts in bringing this landmark event to fruition.

On behalf of the Rajarata University of Sri Lanka, I encourage you to engage deeply in the discussions, challenge assumptions, and forge interdisciplinary collaborations that will resonate far beyond the confines of this symposium. Together, we have the opportunity to generate knowledge and practices that will shape a sustainable future for generations to come. May this symposium stand as an epitomic exemplar of intellectual innovation and act as a driving force for a profound transformation.

Dr. P.H.G. Janaka Pushpakumara
The Acting Vice Chancellor
Rajarata University of Sri Lanka

Message of the Dean

Faculty of Social Sciences and Humanities
Rajarata University of Sri Lanka



It is with great pleasure and honor that I welcome you to the **1st International Research Symposium on Social Sciences and Humanities (IRSSSH 2024)**, hosted by the Faculty of Social Sciences and Humanities at Rajarata University of Sri Lanka (RUSL). This symposium marks a significant milestone as it expands to an international platform, building on the success of two previous national research symposiums. We are excited to bring together scholars and researchers from across the globe to share their valuable insights and contribute to the advancement of knowledge in the fields of social sciences and humanities.

Rajarata University of Sri Lanka has consistently demonstrated its commitment to academic excellence and societal impact, as evidenced by our ranking in the **Times Higher Education Impact Rankings 2024** where we are placed 4th among Sri Lankan universities and within the 801-1000 global range. This recognition reflects our unwavering dedication to advancing research and fostering a deeper understanding of the complex issues that shape our societies.

The theme for IRSSSH 2024, ***"Advancing Multidisciplinary Research for Sustainability,"*** emphasizes the importance of collaboration across academic disciplines to address the pressing challenges of our time. Sustainability is a multifaceted issue, and by engaging diverse perspectives and expertise, we can develop innovative and holistic solutions that promote long-term social, environmental, and economic progress. The symposium provides a platform for researchers to present their findings, share experiences, and engage in meaningful discussions that will contribute to the collective effort of shaping a sustainable future.

As the Dean of the Faculty of Social Sciences and Humanities, I am proud to witness the growth of this symposium and the remarkable contributions of our global research community. I look forward to the exchange of ideas, the building of new collaborations, and the impact this event will have on the broader pursuit of knowledge for a more sustainable and equitable world.

I wish you all an inspiring and successful symposium.

Professor E.M.S. Ekanayake
Dean - Faculty of Social Sciences and Humanities
Rajarata University of Sri Lanka

Message of the Symposium Chair

The 1st International Research Symposium, 2024
Faculty of Social Sciences and Humanities



I welcome you to the 1st International Research Symposium on Social Sciences and Humanities (IRSSSH 2024), organized by the Faculty of Social Sciences and Humanities at the Rajarata University of Sri Lanka. This groundbreaking symposium, held under the theme "Advancing Multidisciplinary Research for Sustainability," embodies our commitment to fostering collaboration, sharing knowledge, and addressing global sustainability challenges through multidisciplinary research. Taking place on December 17, 2024, this event will feature a ceremonial inauguration at Rajarata University and online presentations, uniting researchers from around the world.

The symposium has attracted tremendous interest, evidenced by the submission of over 110 abstracts, out of which 78 have been selected for presentation. This platform offers a unique opportunity to engage in discussions that inspire new methodologies, innovative ideas, and impactful collaborations to address pressing global issues on sustainability.

I extend my sincere gratitude to the researchers, reviewers, keynote speakers, academic and professional partners, and organizing committee members whose dedication has made this event a success. Special appreciation goes to our esteemed keynote speaker, Professor Vishalache Balakrishnan of the University of Malaya, Malaysia, for her invaluable contribution in setting the tone for meaningful dialogue and insight. Together, we are fostering a culture of knowledge-sharing that is instrumental in building resilient communities and sustainable development practices.

IRSSSH 2024 is more than an academic gathering; it is a celebration of collective intellect and innovation. May this symposium spark transformative ideas, strengthen professional networks, and catalyze solutions for a better tomorrow. Thank you for your participation and dedication to advancing the boundaries of research and scholarship. Let us embrace this opportunity to leave a lasting legacy for future generations.

Professor D.M.S.L.B. Dissanayake
Symposium Chair - IRSSSH 2024
Faculty of Social Sciences and Humanities
Rajarata University of Sri Lanka

Keynote Speaker

The 1st International Research Symposium, 2024
Faculty of Social Sciences and Humanities



I am honored to convey my warmest greetings to all participants of the 1st International Research Symposium on Social Sciences and Humanities (IRSSSH 2024), organized by the Faculty of Social Sciences and Humanities at Rajarata University of Sri Lanka. The theme "Advancing Multidisciplinary Research for Sustainability," represents a crucial juncture in our shared endeavor to explore the global issues of sustainable development.

By integrating several disciplines, we can establish a basis for new solutions that manage intricate social, environmental, and economic challenges. This symposium demonstrates the efficacy of collaboration and knowledge dissemination, uniting researchers, educators, and professionals worldwide to share ideas and insights. It will examine the essential functions for fostering sustainable futures.

The eight varied symposium tracks cover diversity enhances of conversations and guarantees that the symposium's outputs are significant, influential, and extensive. As we commence this intellectual endeavor, let us acknowledge that sustainability is not a goal but an ongoing process of enhancement and adaptation. Every individual has a responsibility in fostering a sustainable future, and this symposium represents a key advancement towards that goal.

I anticipate engaging with all of you throughout this event and being inspired by your research, creativity, and commitment. A multidisciplinary approach would enhance innovation and create sustainable efforts to further advance into the world of impactful research and publications. Let us together establish a world that integrates progress with sustainability.

Professor Dr. Vishalache Balakrishnan
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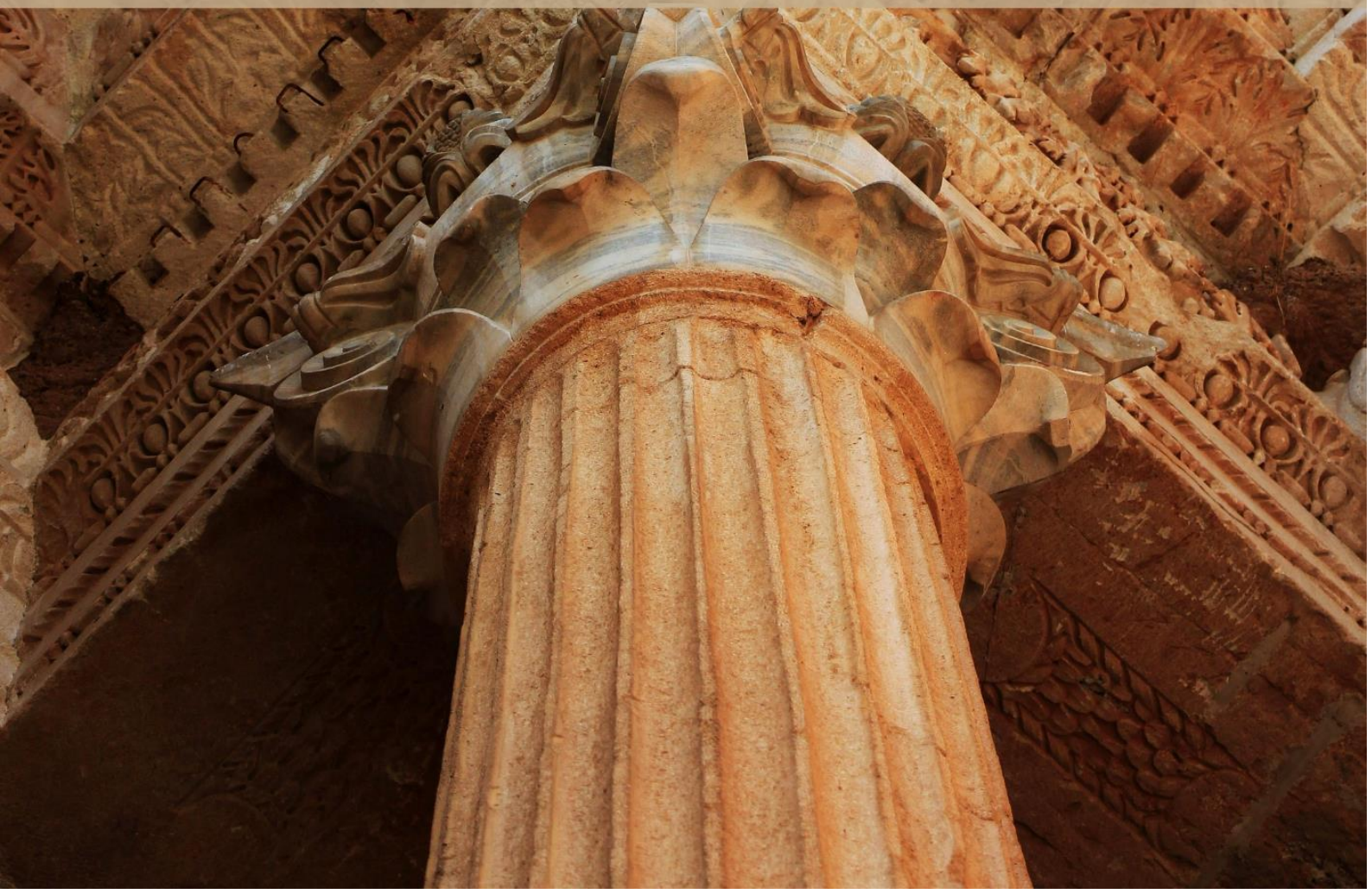
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IRSSSH 2024

International Research Symposium on Social Sciences and Humanities

Track 1
Archaeology, Heritage Management and History

Preserving a Sustainable Future



A Research on Mahāyana Influence on Teravāda Tradition in Anuradhapura Kingdom

R. Hirusha Lakshan Dissanayake

Department of History, Faculty of Social Sciences, Kelaniya University, Kelaniya, Sri Lanka.
hirushadissanayaka2000@gmail.com

1. Introduction

During the lifetime of the Lord Buddha, there were various divisions in the Buddhist Doctrine. Ideologically different groups were seen in the Buddhist discipline and after the Buddha's parinirvāna this situation gradually escalated in Buddhist Practice. In the first Dharma Council (Sangayanā), the musician Theras worked to maintain pure Buddhism by filing a unified opinion. But the situation changed with the sectarian split in the Second Dharma Council (Sangayanā). There were two major divisions, Theravada and Mahayana, and their sub-divisions also developed over time. Theravada Buddhism came to Sri Lanka after the Third Dharma Council (Sangayanā). A lot of information available in this regard in the history of Buddhism Mahayana Buddhism gradually came to Sri Lanka, in the second part of the Anuradhapura kingdom and it is obvious that, an attempt was made to make Mahāyāna tradition bring in to the platform of governing authority of Buddhist practice. Here it is questioned whether the Mahayānic influence was undermining Theravada during the Anuradhapura period.

2. Study of sources

Literary sources and archeological sources have been used as sources in this study. When considering the literary sources, Deepavaṃsa, Mahavaṃsa, Vansaththappakāsiniī the Mahavaṃsa commentary and Nikāya Sangharaha were used here and Pahiyan's peregrinate report, a foreign source written at this time are mainly considered. Also, this research has been done using the inscriptions containing information about the Mahayāna influence of the Anuradhapura kingdom and all information has been comparatively used with secondary sources.

3. Research methodology

In order to conduct qualitative research, mainly primary sources analyzed and information thus collected was analyzed systematically. Based on this overall information a revelation was made regarding the influence of Mahayāna Buddhism in Sri Lanka during the Anuradhapura era and its form was analyzed and the historical background related to the matter was discussed.

Introduction of Mahāyānism to Sri Lanka and its expansion

Two hundred and thirty-six years after Buddha's Parinirvāna Arhath Mahā Mahinda Thera came to Sri Lanka with a group of Buddhist followers as missionaries of Buddhist establishment to introduce Buddhism which, was organized by the Emperor Ashoka after the third Dhamma council. King Devānampiyatissa, who was the ruler of Sri Lanka at that time, accepted this religion and he himself embraced Buddhism taking actions to consider it as the state religion of Sri Lanka. A unique event that happened there and establishment of an institution called Mahāvihāra was a major incident of the history. Leadership of Mahāvihāra has been prepared in danger in the reign of Valagambāhu because of establishing a new monastery called Abhayagiri. (MAHAWAMSA, 33.81-85)

The disciplinary problem caused by the personal offering of a monastery to Kupikkala Mahatissa Thera, who had helped King Walagambahu when he was in difficult condition which pave the way to separate Buddhist monks into two groups.

The development of Abhayagiri monastery took place along with the Mahavihāra due to king's full support. After that Abhayagiri monastery became a powerful religious institution as powerful as the Mahavihāra. Even though the monks of Abhayagiri worked in the same way as in the early Buddhist period, it does not appear that they held monopolistic ideologies of dhamma or discipline as much as in the Mahavihāra. They gave opportunity to new ideologies. (Buddhadatta, 2014, 230).

It seems that various religious groups in India came to Abhayagiri and lodged there because it provided an opportunity for new ideas. In between, there may have been groups holding Mahayāna views. The day of King Vohārikatissa strong Mahayanic influence was taked place. It is very important here to investigate the information given by the sources of Mahavaṃsa, Deepavaṃsa and Nikaya Sangharaha regarding the issue of the day of King Voharika Tissa.

Analyzing the information shown in these sources, it appears that some kind of foreign connection came to light at that time. The other one was Dammaruchika which was aided by Abhayagiri sector. After that Vaitulyavāda ideas were investigated by the Minister Kapila and king ordered to destroy all of them.

A monk named Usseliatissa lived in Abhayagiri who embraced Vaitulyavāda. It is stated in the Nikaya Sangharah that a monk named Usseliatissa, along with three hundred other monks, separated from Abhayagiri and went to live in Dakkhinagiri Vihara identified as Sagalikas. Mahayana ideas could not be stopped from spreading from India at that time. Because of that king Gotabhaya had to take actions to depress those ideas in a very repressive manner.

The sources described the form of the Mahayana during the reign of King Gotabhaya by having Abhayagiri as the center. King Mahāsenas time the development of Mahāyana was above board and it pave the way to build another monastery called Jetavana. (Nikaya Sangraha, 1997,15)

King Gotabhaya entrusting the education of his two sons to Sanghamitra shows that the great temple with Theravāda monks was in decline at this time. Because the favors shown by the kings to the great temple in the past are very special, but at this time, it can be concluded that the entrusting of their princes or future kings to Sanghamitra Thera was due to a weakness of the great viharas who acted as pilots of the Buddhism. However, during the reign of King Mahasen, the space was gradually prepared for the restoration of the great temple, and the construction of the Jetavana.

During the reign of King Shilākala, Mahayāna ideas came back to Sri Lanka. In the twelfth year of his reign, a Mahayanic book called Dharmadhatu was brought to Sri Lanka by a merchant named Purna. King Shilākāla, who lived as a monk in India before come to the power in Sri Lanka, may have studied this dharma. However, a problematic situation has arisen here regarding the giving of a book with Mahayanic ideas to Jetavana by the Abhayagirikans.

At this time, a certain Mahayana tradition known as Vajriyaism came to Sri Lanka. Nila Patadharshanists, who were inclined towards Tantric dharma, wore black robes instead of yellow robes. It is said that instead of the jewels of Buddha, Dhamma and Sangha, women,

Sura and Kama Deva were also thinned. Information about Sammitiya Nikaya, a Mahayanic sect during the reign of King Kumaradasa, and how the book Nila Pata Darshana was composed, is shown in the Nikaya Sangha. (Nikaya Sangraha, 1997, 23) There is no information about the Mahayanic ideas after King Sena II of the Anuradhapura period with the formation of politically revolutionary atmospheres in India, the source of religious ideologies is not seen. Later, Mahayanic ideas were integrated into Sri Lankan culture and became another aspect of the Sri Lankan Buddhist tradition.

4. Conclusion

During the Anuradhapura era, the Theravāda Buddhist foundation had gained prominence in the spiritual and cultural life of that period. But Mahayana Buddhism had also gained acceptance during that time. However, it cannot be directly said that the Mahayanic influence continued to overshadow Theravada. But the entire priority of the Buddhist Sangha in Ceylon was for the propagation and protection of Theravada, and after a period Mahayanic elements may have been incorporated into the Theravada Buddhist base. However, at the end, it can be concluded that although the Mahayanic influence gradually increased, it did not completely subdue Theravāda. Theravāda Buddhism, with patronage and protection, was acting as a major trend in Buddhist life at the time.

5. Keywords

Anuradhapura period, Abhayagiriya, Buddhist culture, Mahayana, Theravada

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A Study of the Exclusion of Devendra Mulacharya, the Royal Artist of Kandy Kingdom from Historical Monuments.

Sarath Manula Wickrama

Faculty of Graduate Studies, University of Kelaniya, Sri Lanka. manuwic@gmail.com

1. Introduction

According to the reports, the temple of the sacred tooth relic in Kandy has now reached the first place among the most attractive places to visit in the world. *Devendra Mulacharya* is the architect of the entire Kandy kingdom, (Karunarathna 2015:3) including The *Paththirippuwa*, (also known as the Octagonal Pavilion, is a magnificent architectural structure) of this palace complex, *Walakulu Bemma* (Cloud wall), Bogambamara lake, *Diyarella Bemma* (water wave wall), *Mangul Maduwa* (assembly Hall) and frescoes. *Moolacharya* means a scholar of professional and academic value with higher competence in more than five subjects of higher value than the current 'Phd'. The five major industrial departments and other artisans of the Kingdom of Kandy worked under this *Mulacharya*. Kandy, which was one of the best cities designs in South Asia at that time, was a concept of this person. Even today, there is no memos for the designer of this building complex, which is considered as a Buddhist heritage, a tourist attraction and the crown jewel of the nation. A large group of artisans including Devendra Mulacharya built the creations of this kingdom. (Wijesundara 2004). The descendants of all these people are questioning why there is no monument even for this master craftsman. This royal artist is a special figure in the history of Kandy Kingdom as a royal engineer as well as a painter who performed a huge mission under the three kings Keerthi Sri Rajasingha (1747-1782 AD), Rajadhi Rajasingha (1782-1798 AD) and Sri Wickrama Rajasingha. All these three kings had given this royal creator the appropriate positions, power, recognition, privileges and gifts. These kings have given the most powers among all the ministers to Devendra Mulacharya who represented those royal councils. All this changed after the surrender of the Kingdom of Kandy to the British and the people of Sri Lanka who gained independence have forgotten these figures. Relatives of that generation and the common people have pointed out to the Kandy city authorities for a long time that these people who gave great value to the Kingdom of Kandy and to Sri Lanka today have been neglected. According to legend, the other officers who were jealous of Devendra slandered before the king and put him to death. (Arunasiri 2018) After his death, King Sri Wicikmara Rajasingha, who realized the reality, gave the honorable names and surnames for his family. The relatives say that there is a need for a present monument in the name of Devendra in the city of Kandy or inside the temple of the tooth relics premises where there are many monuments in the name of the English who destroyed everything in this kingdom. This study shows about this artist as well as his followers, their immortal creations, the use of them by Sri Lankans today and the damage caused to our national heritage by forgetting the artists. By adding the details of the artisans related to these historical places and the gratitude to be done to the artisans by building a commemorative plaque, the value increase and the programs to be done for that are suggested at the end of this study.

2. Materials and Methods

The aim of this research is to find out why Devendra Mulacharya, the royal artist of the Kandy Kingdom, has been removed from historical monuments**.**

This study was conducted as qualitative research that collects data through mixed methods of interviews, participant observation, field observations and content analysis. Interviews were conducted as a random sample from the current people of the Kandy art and industry generation, including the Devendra generation. There were 20 interviewees. Also, the information of the folk tales among the people was also used. After tabulating this data, the obtained information was grouped and analyzed by identifying the peculiarities. The Kandy Museum, the Dambulla Temple Museum and the villages that were given as gifts to artisans were also observed as field observations.

3. Results and Discussion

It is no secret that the last kings of the Kandy kingdom of Sri Lanka built a lot of temples to create great religious disturbances. There they have received the contribution of industrialists and artists. According to the caste system of the old Indian society, the kings who are recognized as three descendants of the Brahmin family (*Vishva Brahman*) who originated as the sons of *Vishwakarma*,(a craftsman deity and the divine architect of the devas in contemporary Hinduism) the craftsman generation (*Navandanna*) of this country, (Kalupahana1930:5) have been divided into five industries in parallel. The five sons of *Vishva Karma* are Manu, Maya, Thvasthra, Shilpee and Vishvajna and their respective industries are iron, wood, brass and copper, stone and gold jewellery. (Amarasinghe 2018:46) Accordingly, the departments established by the king are called Pattals(workshops). These pattals can be identified as jewelery pattals, crown pattals, goldsmith pattals and throne pattals.(Waidyasekara 2017:4) An expert who has studied more than five subjects related to these lathes is a principal. Devendra is an expert in a wide range of disciplines such as painting, engraving, architecture and home design etc. Therefore he was appointed as the head of all the other artisans in the kindom of Kandy. The study of Devendra's biography is also important to know what was inherited by the artistic generation of the entire Kandy state, which built Degaldoruva Vihara and other works. (Wijesundara 2002) Gifts such as Elephants, elephants, houses, lands, official residences and gifts of gold had been offered him by the kings for his great services.

Offices, uniforms, positions, tools related to the position, power, right to royal assembly etc. were the other privileges received by Devendra from the kings. İn adition to these privileges there were awards, permission to build valuable houses, favor with the king, neglect in the event of a mistake, high recognition, tributes, representation in royal ceremonies, being high in caste and class. In addition to that, positions such as advisor, secretary, royal positions such as *Mohottala* of the district, *Gamlath* positions, *Muhandiram, Kottalbadda*, *Pattalam* stewardship could be obtained by that generation with the approval of Devendra. (Amarasinghe 2018:46) As other special privileges, the royal engineer had the right to keep the sword straight on his waist, only Devendra *Mulachari* had the opportunity to create the shape of the top of the thuppapottiya or waist-cloth of an upcountry chief, the crown designers had the opportunity to look at the king's crown head on, and the king had the ability to wear crowns and crown the royals during the coronation. With this privilege, Devendra has created many wonderful works (Jayawardena 2017:55). At the end, Devendra was killed immersing in the lake he created in a

conspiracy by the officials of the royal council (Arunasiri 2018). The need of the colonial rulers was to destroy such outstanding people in the country, so these opportunities were lost to this generation after the rule of the British Empire. The main reason for all this happening is the bureaucracy that has taken root in this country. Because of this, even today there is a big gap in the description of the Kandy Palace of the Tooth, which is one of the most valuable historical centers for the existence of this country. It also reveals the evil nature of our society.

4. Conclusion

Devendra Mulacharya has rendered unique service to the Kingdom of Kandy. There is enough evidence in that regard. Devendra Mulacharya and other artisans were highly regarded by the Sinhalese kings. However, there is no mention of this designer in the city of Kandy and the temple of sacred tooth relics. There are only factors in the museums. Not because of the request of the family of Devendra but as a nation it is a duty to maintain the memorial of this royal artist. People are of the opinion that there will be no opportunity to build the memorial for Devendra due to bureaucracy even in today. It can be suggested that the attention of the public sector, non-governmental organizations, artists associations, Kandy city authorities, researchers and the UNESCO organization to justify the name of this great person. This situation deserves to be recognized as an important part of intangible cultural heritage. Insults caused by articles written by some people without knowing the proper facts about this person should be avoided. (Karunarathna 2018)

5. Keywords

Bureaucracy, Devendra, Mulacharya, Relics

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An Exploratory Study of the Applicability of Various Systems of Ancient Architecture to Modern Sustainable Construction

K. Tharunya Kalpani

University of Kelaniya, Kelaniya, Sri Lanka. kalpakalatuwawa123@gmail.com

1. Introduction

It is no secret that Sri Lanka has achieved an architectural wonder since the eras of ancient civilizations such as Anuradhapura and Polonnaruwa. Looking at the ancient city plans of the time, from hydraulic systems to natural materials, reveals many valuable lessons for modern sustainable construction design. Ancient architectural wisdom has shown solutions such as energy efficiency, environmentally friendly durable building construction techniques to successfully face the challenges of climate change, depletion of resource reserves and rapid urbanization, which are faced globally day by day. The purpose of this research is to examine modern sustainable construction by proposing a methodology for adapting past architectural techniques to the current construction industry.

Much research has been done on the excellence of ancient architecture and on modern architectural design, but very little has been done experimentally comparing ancient architectural techniques with modern architecture. This research is done impartially to fill that gap. This research is limited to whether the ancient architectural knowledge of Anuradhapura and Polonnaruwa.

2. Materials and Methods

This study is concerned with providing a comparative analysis of ancient and modern architectural techniques. This research has been done by taking the field observations are Anuradhapura as basic data. Also, historical architectural records, raw materials (brick, stone, wood) are examined and compared and contemporary architectural knowledge on sustainable building construction practices is reviewed. Ancient and modern architectural techniques were analyzed by field observations, analysis of historical documents, and studies undertaken for comparisons. In Anuradhapura and Polonnaruwa, the field observation allowed first-hand information to be gathered regarding the features and techniques used in ancient constructions. In addition, analysis was carried out on historical architectural records to understand how methodologies and materials were used. This was accompanied by the review of current sustainable building practice to identify parallels and potential applications of ancient techniques in modern contexts. Qualitative comparative analysis was the primary method utilized in this research. This involved it systematically compared ancient architectural techniques with modern sustainable construction practices. The research also included a literature review of the existing studies available on ancient Sri Lankan architecture and modern sustainable design principles.. The multifaceted approach enabled a comprehensive understanding of the applicability of ancient techniques to modern construction. Materials for this research were gathered from various locations and resources.. Field observations were conducted at Anuradhapura, where these historical architectural sites can be found. The historical architectural records were obtained from libraries, archives, and academic institutions dealing in history and architecture, especially as it relates to Sri Lanka. Further, the knowledge of modern architecture has been obtained from very recent publications, research papers, and case studies related to sustainable building. This thus provided a firm basis for

comparative analysis. A comprehensive review of existing research on ancient Sri Lankan architectural background and modern sustainable design principles has been undertaken.

Documentary information on architectural techniques, materials and environmental adaptations of historical cities such as Anuradhapura. has been investigated. It also emphasizes the extent to which methods such as water management and construction using local materials have influenced contemporary construction. Primary sources for this research include on-site observation and analysis of ancient constructions and materials in Anuradhapura. Field studies provided direct knowledge of the architecture pertaining to materials such as bricks, stone, and wood. In addition, historical records in the form of inscriptions and ancient texts present in archives were researched in order to gain an understanding of traditional methods of construction. Secondary sources utilized in this paper thus include current scholarly works, articles, and books pertaining to sustainable architecture. These secondary materials interpreted the ancient techniques in light of modern sustainable practice, thus providing a comparative basis for the research. Collectively, these sources will enable a comprehensive analysis of how ancient architectural wisdom can inform current sustainable construction methods.

3. Results and Discussion

The study revealed several strategies that can be used in modern constructions of ancient Sri Lankan architectural knowledge. Ancient Sri Lanka's hydraulic systems, particularly in the cities of Anuradhapura, exhibit advanced water management techniques. The intricate networks of reservoirs, canals, and retention ponds not only provided essential water for agriculture and daily use but also demonstrated early examples of integrated urban planning with sustainability in mind. For example, tanks and reservoirs in Polonnaruwa like the Parakrama Samudraya reflect a profound understanding of water storage and management, ensuring the community's resilience during dry periods. These systems can be adapted in modern urban environments to address contemporary challenges, such as water scarcity, rainwater harvesting, and stormwater management. By integrating natural reservoirs or retention systems within cities, urban planners can reduce the demand on municipal water supplies and enhance resilience to climate variability. The subject matter is highly relevant and notably contributes to your research objectives. It provides a complete example of how the ancient water management techniques, such as those in Anuradhapura and Polonnaruwa, are highly sophisticated in terms of their sustainable practices. By placing focus on these historical systems, such as Parakrama Samudraya, the emphasis is squarely on how adaptable it is to modern challenges, which is precisely your objective: to explore ancient Sri Lankan architecture in regard to applicability to modern sustainable construction. It would also provide a perfect opportunity for the foresight into the role traditional knowledge could play in resolving some of the environmental problems being faced today, such as demonstrations of rainwater harvesting, techniques for overcoming water shortage, and stormwater management.

Ancient Sri Lankan structures, particularly monastic complexes and royal palaces, utilized the thermal massing properties of large stone blocks and thick brick walls to naturally regulate temperature. This passive cooling mechanism reduced the internal temperature of buildings during hot days and retained warmth during cooler nights. The Sigiriya Rock Fortress is a prominent example where the strategic use of natural materials enabled temperature control without relying on external energy sources. Modern architecture can benefit from these principles by incorporating local, thermally efficient materials such as stone and compressed

earth blocks to reduce reliance on mechanical cooling and heating systems, particularly in tropical climates. This can significantly lower the energy consumption of buildings, contributing to reduced greenhouse gas emissions and promoting long-term energy efficiency.

Ancient buildings in Sri Lanka were designed to maximize natural ventilation and lighting through the strategic placement of open courtyards, windows, and verandas. Monastic structures like the Jetavanaramaya Monastery and Abhayagiri Monastery in Anuradhapura incorporated courtyards and open spaces that allowed air to flow freely, creating a naturally ventilated environment. Jetavanaramaya and Abhayagiri Monasteries in Anuradhapura are the major ancient monastic complexes in Sri Lanka. The two great monastic cities were designed outstandingly and are known for their architectural properties. To be stated precisely, in the case of the Jetavanaramaya Monastery, with the presence of this tall stupa known as the Jetavanaramaya Stupa, the monastic complex comprised living rooms, meditation halls, and open courtyards that allowed natural ventilation so that comfort could be given during the tropical climate. Similarly, the Abhayagiri Monastery, identified as one of the most famous monastic and cultural centers, was also designed to house residential places, assembly halls, and courts, which were planned in such a way that proper flow of air could be obtained. Both monasteries represent an adaptation to the climate of the early Sri Lankan architecture and include methods in passive cooling and natural ventilation that are in line with modern sustainable practices. These designs not only provided thermal comfort but also reduced the need for artificial lighting and air conditioning. Modern architecture can integrate these principles by using open floor plans, ventilation corridors, and strategic window placement to enhance natural airflow and lighting in buildings, further reducing energy consumption.

The ancient builders of Sri Lanka relied on locally available materials like laterite stone, clay bricks, and timber. These materials were not only abundant but also environmentally friendly due to their low carbon footprint and minimal transportation requirements. Furthermore, these materials aged well and were naturally integrated into the surrounding landscape, promoting environmental harmony. The use of natural lime mortar instead of modern cement also allowed structures to "breathe," contributing to indoor air quality. Modern architecture can adopt similar practices by focusing on locally sourced materials and sustainable construction practices. This will reduce the environmental impact of building materials and promote the longevity and sustainability of modern structures.

4. Conclusion

It can be concluded that ancient Sri Lankan architectural techniques provide valuable insights into resource efficiency, environmental harmony and energy conservation for sustainable design. If these methods are adopted, the planners can carry out constructions in accordance with the environmental requirements in accordance with the Sri Lankan climate. This study proposes the integration of archaeological knowledge into modern construction by adapting these techniques to modern goals and reusing lost techniques.

5. Acknowledgment

This work was fulfilled with the facilitation of the Department of Archaeology in Sri Lanka through access to historical sites and value data. Special thanks are required from the authors to Mr. D.M. Amarasinghe and Ms. K.P. Jayawardene for their commendable contributions with regards to sustainable architecture, and for continued support in bridging traditional techniques

with contemporary construction practices. We would also like to thank field inspectors Mr. S. Bandara and Ms. R. Fernando, who did an excellent job in carrying out the site surveys, for their serious involvement in the process which added considerably to this study.

6. Key words

Archaeology, Architecture, Construction, Sustainable development.

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An Investigative study of beliefs and faiths in ancient time by using ruins of *Dedigama Kotawehera*

K.A.S.S. Dharmarathna

Department of Pali and Buddhist studies, University of Kelaniya, Kelaniya, Sri Lanka.
sandalankashashi000@gmail.com

1. Introduction

Dadigama kotawehera is one of the most important Buddhist inheritance in Sri Lanka. According to historical resources written about Sri Lanka, Dadigama kotawehera has created by king Parakramabahu the great. What are the beliefs of people of that era can be identify by using from ruins and evidence have remain in Dadigama kotawehera is the problem of this research. Finding many of believes during at that time in Sri Lanka using from ruins of Dadigama kotawehera is the main purpose of this research. Ath pahana major creative work of ancientners is a special item have found at Dadigama kotawehera. Dr. Manawadu, prof. Senarath D.G.A Perera, Dr. Rohan D. Gunarathna and many ~~of~~ other scholars have given special attention for it. There are a few of archeologic ruins have been unearthed. The ath pahana which was one of a very creative lantern has many of details of beliefs in ancient people created and there are lot of social symbols relevant at that time. Though many scholars have paid their attention about Dedigama kotawehera but they haven't analysed the beliefs of those special inventions clearly yet.This research mainly aimed at beliefs of normal masses connected with religious and social phenomena. Qualitative research methodology has been used for this research.

2. Materials and Methods

Qualitative research methodology is used for this research. Pottery, inscriptions and architectural remnants found at the site, stone inscriptions which can offer insight into the religious, cultural and social contexts, detailed accounts from archaeological excavations and document findings, contexts and interpretations by researchers of excavation reports, ancient texts or chronicles that mentioned the site such as the Mahavaṃsa, have used as the primary sources and they provide more valuable details to understand the main atmosphere of that era. Explanations of Prof mandavala and Dr. karunasena's also used for more clarifications.

3. Results and Discussion

Archaeological excavations done by many scholars found several special findings including Buddha's status, metal objects, aesthetic inventions, symbols and many more from Dedigama Kotavehera. Kotawehera Dagaba and Soothighara maha seya reportedly build by king Parakramabahu the Great. This place identified as the birth place of king parakramabahu. So he has created this largest and valuable stụpa in this place. Ath pahana is most important symbol can be found from excavation at dadigama kotawehera. Elephant or Tusker is most respectable animals even in nowadays. Elephants or Tuskers has used for this special creation. Some scholars mentioned an idea for the question, why a statue of this animal has used to create this lantern. According to them, Elephant or Tusker has a respect during king Parakramabahu the great. Because in procession festivals they use for proceeding sacred things or relics. Also the holding chain fixed with the Ath Pahana has designed to represent the procession culture elements.

This holding chain has created with small statues of drummers, dancers connected with each like in processions. So it is clear that the procession is a major part of this period.

Another important archaeological statue which show symbolic belief performed in that era is cobra statues. Lots of cobra statues may have created in that era of Parakrmabahu great. During his reign, Hindusm was introduced to Sri Lanka Because Hindu invasions attacked king parakramabahu. When they confirming the throne, their cultural beliefs and symbols crawling in to Sri Lankan culture.

The foundation of the Soothighara stupa has separated chambers. According to the scholars special foundation structure can be pointed out as main evidence for Tantrayana influence which one part of Mahayana sector. In Tantrayana Buddhism have special item called "Mandala". That beliefs may have influenced to structure formation of Dadigama kotavehera stupa foundation. Thantrayana Buddhism have arrived to Sri Lanka during last part of the Anuradhapura kingdom. It can be pointed out from this evidence. Some of cobra statues have found inner of stupa. Naga worship is most powerful belief in Sri Lankan society at Pre-Buddhist era. That belief within the Anuradhapura kingdom. Ancient local artists represented naga arts in Guard stones which placed near the Buddhist stupas and buildings.

Overall, the findings suggest that the ruins of Dedigama kotawehera are not merely remains of past civilizations but are imbued with layers of belief and faith, illustrating how ancient societies integrated their spirituality into both their architecture and daily life. This interplay highlights the importance of a reflection of enduring values and communal identity.

4. Conclusion

Finally, the archaeological findings at Dadigama kotawehera provide a deeper understanding of the site's historical and cultural significance, particularly during the reign of king Parakramabahu the great. The presence of various artefacts such as Buddha statues, Ath pahana and unique architectural elements underline the fusion of religious beliefs and artistic expressions of the time. The depiction of Tusker in the Ath pahana reflects the cultural reverence for elephants, their symbolic importance, in ancient Sri Lankan society. Furthermore, design elements such as holding chain of Ath pahana illustrate the interconnectedness of dance, music and cultural celebrations, indicating a rich tradition of processions and communal gatherings.

Influenced by Tantrayana Buddhism, the basic Mandala-like structure suggests significant interaction between different Buddhist Traditions during this period. In addition, the discovery of naga statues reinforces the continuity of Pre-Buddhist naga worship within the evolving religious landscape, demonstrating the ability of local beliefs to coexist with new ideologies. Overall, Dadigama kotavehera servers as a testament to the complex interplay of cultural, religious and artistic developments in ancient Sri Lanka, offering a valuable perspective on the historical narrative of the region. The site not only celebrates the legacy of king Parakramabahu but also enshrines the Sri Lankan identity. Many of beliefs during ancient time can be pointed out using from ruins have found at Dadigama kotawehera.

5. Acknowledgment

I extended my gratitude to the Archaeology department of Sri Lanka for granting permissions to visit and study Dedigama kotawehera. Special thanks to Professor Mandawala, Senior

Professor Ven. Makuruppe Dhammananda, Dr. Ven. Welimadagama Kusaladhamma who participated to interviews and contributed valuable insights, as well as authors of the texts that informed this research. (Project number – 83)

6. Keywords:

Ath pahana, Cobra Statue, Dedigama kotawehera, Soothigara maha seya

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Impact of Samyé Debate in Tibetan Buddhism

Hongyue, Fang

The University of Hong Kong. fhongyue@connect.hku.hk

1. Introduction of Samyé Debate

Samyé Debate, also known as the "Council of Lhasa," took place in the late 08th century in Tibet, under the patronage and "witness" of Tibetan Emperor King Trisong Detsen (Tib. *Khri Srong lde btsan*), marked a pivotal event in Tibetan religious history. This two-year monastic debate, that happened around 792–794 CE, brought together Buddhist scholars from India and China at *Samyé*, deciding the theorical and practical basis of Tibetan Buddhism.

The debate was convened at the *Samyé Monastery*, the first Tibetan Buddhist monastery constructed during King Trisong Detsen's reign, under the oversee of Indian philosopher and scholar Śāntarakṣita and Padmasambhava. It is characterized by a mandalic design, in which the centre of the monastery is the Vairocana, tantric Imperial form of *Śākyamuni* Buddha, also can be seen as a kind of homology to the emperor himself that radiating the whole empire. His four-decade reign witnessed significant territorial expansion, with a need for a unifying cultural force to manage the diverse religions and traditions within the empire. In this context, Buddhism served as a cohesive cultural framework or consensus to harmonize dissonant cultures and practices. The establishment of Buddhism as national religion is not only to address religion issue in Tibet but also more likely a symbol that establish the emperor himself. His early exposure to Buddhism, influenced by his father-who was assassinated—along with his subsequent period of out-of-power, also made him choose Buddhism as a litmus test for those who oppose him as an anti-Buddhism atmosphere around aristocracy.

In this case, there is no doubt that *Samyé Debate* facilitated Tibetan both religiously and politically, especially for Tibetan Buddhism and its practice methods. By the late 08th century, a rich cultural exchange appeared between Tibetan, Indian, and Chinese. The forms of Buddhism in India and China have already provided a matured blueprint for the new tradition but with different interpretations of Buddhist doctrine and practice methods. Therefore, the debate was held with the aim of determining a path that would be culturally appropriate and beneficial for the Tibetan people.

The main conflict in this debate addressed perspectives on the nature of enlightenment between Indian and Chinese Chan Buddhism with its different meditation practices. Whether the "achievement of Buddhahood" (enlightenment) is the result of a gradual "step-by-step" process (gradual enlightenment), which is from Indian conventional Mahāyāna view, or it can be reached without any means (sudden enlightenment), immediately and directly "all-at-once", which is from Chinese Mahāyāna Chan view. Both sides are often referred to as "gradualism" for Gradual School and "subitism" for Sudden School separately. This needs to be clarified because enlightenment is the ultimate goal for various Mahāyāna tradition. Different understanding of enlightenment corresponds completely two different meditation practice methods, which would shape the theoretical basis and practice methods of Tibetan Buddhism and lay a framework for its subsequent development and evolution.

King Trisong Detsen invited Buddhist dignitaries from both Indian and Chinese view, highlights the participations of Kamalaśīla, the disciple of Śāntarakṣita, representing Gradual School, and Chinese Chan monk Moheyan, representing Sudden School.

2. Materials and Methods

This paper addresses the following research problem: To what extent has the *Samyé Debate* influenced the 08th century of Tibetan Buddhism? It chooses hermeneutics as the methodology to interpret available textual sources on the subject. Distinguishing the different philosophical

foundations and practical methods between Gradual School and Sudden School in the case of the historical and religious Tibetan resources and literature from other scholars sheds light on this study.

3. Gradual Enlightenment and Sudden Enlightenment

3.1. Gradual Enlightenment Rooted in Compassion with Meditation Practice on Śamatha and Vipaśyanā

Gradual School, represented by Kamalaśīla, takes compassion as the root to practice gradually. In three *Bhāvanākrama*s (Stages of Meditation) written by Kamalaśīla, the very beginning of the first *Bhāvanākrama*, he states that recognizing that compassion is the fundamental source and cause from which all the qualities of the Buddha are nurtured:

Those desirous of attaining 'sarvajñatā' (knowledge of the true nature of all phenomena) speedily should, in essence, try to practise these three things: 'Karuṇā' (compassion), 'bodhichitta' (enlightened mind) and 'pratipatti' (perception). Knowing that 'Karuṇā' is the basic root of all dharma practices of Lord Buddha's teachings, it should be contemplated or meditated upon at the very outset (trans. Parmananda, 1997, p. 13).

Compassion is the root and basement that should be developed progressively, through a systematic and "step-by-step" approach. From the beginning, the cultivation of compassion is the basement for attaining Buddhahood. Then, the diligent practice of six *pāramitā*s and cultivation of virtues are required. With adherence to six *pāramitā*s and strict ethical codes, it is characterized as a long journey corresponds to the ten stages towards Buddhahood. For the gradualists, the enlightenment cannot be reached without careful consideration of the process of ascent up the Buddhist path (*marga*), a path marked by ten stages (*bhümi*) that are described in exhaustive detail in Mahāyāna path literature, such as in the *Dasabhūmika Sūtra* (The Sutra on the Ten Stages), the *Bodhisattvabhümi* (Stages of the Bodhisattva), or the *Bodhicaiyãvatãra* (Guide to the Bodhisattvas Way of Life) (Bjerken, 2004, p. 6), which is a strict and long period.

In addition, the union of concentration (*śamatha*) and insight (*vipaśyanā*) is the core practice of the Gradual School. Kamalaśīla explained gradual practice ways on how to attain enlightenment in the second *Bhāvanākrama*: Whatever the various samādhis' of 'śrāvaka'. 'bodhisattvas' and 'Tathāgatas' have been indicated by me should always be regarded as attainable through 'śamatha' and ' vipaśyanā' (trans. Parmananda, 1997, p. 55).

This gradual approach rooted in compassion combines meditation based on both the deep concentration of mind (*śamatha*) and the examination of phenomena (*vipaśyanā*) towards wisdom. With the co-practicing and union of *śamatha*, the practicing concentration of one object to calm the mind, and the *vipaśyanā*, focusing on observing and being aware of all phenomena in a highly-concentrated, detached way, enlightenment is achievable.

Indian Gradual School, rooted in compassion, both the base and the main practice methods all contains a gradual process. It is conservative for it requires the essential role of Buddhist monastic life, ethics, ritual, doctrine that help to indicate the correct path. Without them, one may fail to attain Buddhahood.

3.2. Sudden Enlightenment Rooted in the Pure Nature of Mind with Meditation Practice on Non-conceptual

The Sudden School is represented by Chinese Chan Buddhism, Moheyan. In interpreting the "subitism", enlightenment is sudden because of the pure essence of our nature itself, which is non-conceptual, cannot arise from any intentional efforts. Thus, the rigorous training stages and practices in the Gradual School should be eliminated.

The doctrinal disputes between Kamalaśīla and Moheyan in Bu-ston's *History of Buddhism*, translated by Obermiller (1932):

(The virtuous and the sinful deeds) are just like white and black clouds which alike obscure the sky. But he who has no thoughts and inclinations at all, can be fully delivered from Phenomenal Life. The absence of any thought, search, or investigation brings about the non-perception of the reality of separate entities. In such a manner one can attain (Buddhahood) at once, like (a Bodhisattva) who has attained the 10th stage (p. 193).

The pure nature of our mind is defiled by any good or bad concept by ourselves, just like a white cloud obscure the sun as much as a black one. Therefore, Tucci (1980) mentioned progressive purification is unnecessary; the long career of the Bodhisattva, the gradual path, can be dispensed with (p. 13).

Enlightenment should transcend conceptual understanding and intellectual analysis in a moment of profound insight. A thorough awareness of the pure nature of mind is enough to cut all the defilements and misperceptions produced by ignorance, which leads directly to enlightenment. This awareness or transition cannot be the result of gradual practice but a gift from a sudden realization or flash of insight.

In this way, meditation practice of Sudden School more likely to be merely *vipaśyanā*, emphasizing on nonintentional or "non-conceptual" as superior and more direct to the gradual practice and union of *śamatha* and *vipaśyanā*. Abandon any good or bad concept, the pure nature of mind appears. According to the *Testament of Ba* (Tib. *dBa' bzhed*), Moheyan states at the very beginning of the debate:

[Everything] is generated as conceptualisation of the mind (sems kyi rnam par rtog pa). Due to the power of [their] virtuous and non-virtuous deeds, sentient beings [continuously] revolve in the round of migration (saṃsāra), experiencing [incessantly] the fruits of [either] higher (sugati) or lower (durgati) rebirths. Whoever does not think anything, does not do anything, will [automatically] be liberated from saṃsāra (trans. Wangdu & Diemberger, 2000, p. 80-81).

The ultimate non-conceptual and spontaneous intuition cannot result from any intentional effort, for it is an uncaused innate state, an experiential "given" that when deliberately sought after, is lost or obscured (Bjerken 2004, p. 6). A similar description also appears from Great Chan Master Bodhidharma: "Turn in the correct direction and abandon conceptuality." Moreover, this practice of non-conception in Chan Buddhism is not limited to a seated posture or a step-by-step progress, which can be directly practiced in all daily routine.

Compared to the root of compassion and the long and complex path towards enlightenment in Gradual School, Sudden School put the pure nature of mind of its root, which developed the direct meditation on non-conceptual.

3.3. The Historical Impact of Samyé Debate

The result of *Samyé Debate* is still obscure based on different historical sources. Most scholars' records accept the standard historical narrative in Tibet, which depicts that Kamalaśīla, the Gradual School, won the debate, with the banishment of sudden enlightenment teachings from the region. However, historical sources from China, including texts such as the *Dunwu Dacheng Zhengli Jue*, and other related Dunhuang manuscripts, document that the Chinese Chan monk Moheyan won the debate.

In this case, King Trisong Detsen's declaration that the Indian Buddhist teachings were to be followed is still not enough to clarify his attitude (Tucci 1980, p. 14), as political and spiritual influences were going on simultaneously between India and China. In Contrast, Chan Buddhism did influence Tibetan Buddhism. In the literature of the Vajrayāna, related or comparable notions became especially frequent (Ruegg, 2010, p. 260). Two most crucial practice methods in Vajrayāna of Tibet, the Great Seal (Tib. *phyag chen*) and Great Perfection (Tib. *rdzogs chen*) traditions, were also thought to be influenced by Chan Buddhism. Both

theoretical and practical aspects of Tibetan Buddhism is still influenced by and engaged with the sudden enlightenment.

4. Conclusion

Overall, the *Samyé Debate* was a crucial and watershed moment in the history of Tibetan Buddhism. It solidified Gradual School from India as the predominant tradition followed in Tibet, which was the turning point in Tibetan Buddhist relationship with Chinese Buddhist schools. Since then, Tibetan Buddhism began to have a distinct tradition with its own unique interpretations and practices, influenced by Indian Buddhist thought. The concept and practice method in Chan Buddhism still influences the subsequent growth and evolution of Tibetan Buddhism.

5. Keywords

Buddhist History, Buddhist Meditation, Samyé Debate, Tibetan Buddhism

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Influence of the South Indian Paintings on Murals in a few Buddhist Temples of the Kandyan Period

P. Ashan Isuranga Perera

University of the Visual and Performing Arts. ashanisuranga1@gmail.com

1. Introduction

Since Sri Lanka is an island located in the middle of the Indian Ocean, it plays a fundamental point in conducting correlations with other countries of the world. After the arrival of Arahat Mahinda thero in 237 BC, Sri Lankans who were referring to religious beliefs such as tree worship and rock worship were freed from those myths and Buddhism was nurtured in Sri Lanka. As a result, Buddhist temples were gradually built and in connection with that, mural art was created based on Buddhist themes. The special moments of Buddha's character, jataka katha, Lakdiva and related historical events were the basis there (Bandaranayale, 1986). After the eras of Anuradhapura, Polonnaruwa, Gampola, etc., the art of mural painting underwent various changes and was created during the kingdom periods that entered the Kandy period. Mr. S. A. Wickramasinghe states in the book *'History of Hela Art'* that the painting style born in the Heladiva hills is the art of 'upland paintings' like the art style produced in the Indian art of 'Pahari' or 'Mountains' (Ghosh,1982). During the period of the Kandy kingdom, which began around the 18th century, the temples with paintings of the Kandyan tradition are Dambulla Cave Temple, Kurunegala Ridee Vihara, Degaldoruwa Rajamaha Vihara, Medawala Tampita Vihara, Lewella Gangarama Viharaya, Temple of the Tooth Relic etc. can be mentioned as examples. After King Sri Weera Parakrama NarendraSinghe, who reigned during the Kandy Kingdom period, King Sri Vijaya Rajasinghe, the brother of queen Pramila, the king's concubine, succeeded to the throne. Since then, the Nayaks clans gradually held the throne of the kingdom in Sri Lanka. There they maintained relations with their motherland, India, and information is disclosed in historical sources that South Indian painters were also employed in the temple industry. Commenting on the Indian influence that can be seen in the murals of the Kandy era, Kotagama Wachissara thero says that the art of Kandy was nurtured through that style of art as a result of the relationship with the Nayaks clans.

In India, Hinduism was primarily believed to be a religion, and there was a pantheon of gods headed by the great god or Lord Shiva (Bernier, 1982). This concept of God has been integrated into the art of Sri Lankan paintings and the paintings of Kandyan tradition, highlighting the above mentioned research theme. Furthermore, aspects such as clothing, household appliances, as well as human and animal figures, have been continuously influenced by South Indian art through this research. As the research problem of this study, how did the Kandyan tradition mural paintings of the Kandy era get inspiration from South Indian art? Was identified. Did it create a South Indian art that was combined with Sri Lankan art? According to this background, it is important to first identify the relationship between Buddhism and Hinduism and to assess how South Indian art was inspired through the murals and artistic elements of the temples and shrines of Sri Lanka and India.

2. The Methodology

The primary focus of this research was the investigation of the literature. A preliminary study was conducted on Kandyan traditional paintings and the temple murals in India. When the relevant research problem was discussed based on the primary and secondary data (books,

magazines, articles related to literature, cultural and visual arts information) and facts. The facts were discovered through participatory and observational methods. Also, based on questionnaires and interviews, the basic background needed to solve the research problem was prepared. Finally, collecting the quantitative and qualitative data, the necessary steps were taken to solve the research problem using morphology and semantics analysis methods.

3. Results and Discussion

Looking at Sri Lankan history, there is evidence that Indian tourists visited Lakdiva. Legend has it that the beginning of the Sinhalese nation was born from Prince Vijaya, who came to Lakdiva on the day of Buddha's Nirvana. Also, sources such as the Mahavamsa show that Sri Lanka and South India were mixed through invasions such as the seven Dravidians invasion, the Elara invasion during the Anuradhapura period and the Kalinga Magha invasions during the Polonnaruwa period. Also, during the Kandyan Kingdom, Sri Lankan kings appointed South Indian princesses as their consorts, where Nayaks clans also had the opportunity to join the royal family. (John,1996). Kandy paintings provide examples of Sri Lankan art and South Indian art blending through events such as Dravidian invasions of South India and becoming a state.

Accordingly, it can be concluded that the art of Indian painting came to our country through the Dravidians and Nayaks who came to Sri Lanka. The paintings of Weera Bhadra Viharaya, Lepakshi, a site of Indian paintings created contemporaneously with the Kandy Kingdom period, provides excellent examples. Human and animal figures have been created in perspective according to the continuity method of those paintings. The similarities between the temple paintings of the Kandy tradition are shown through trees, floral designs and buildings to fill the space, and red and brown colors for the background (Redy, 2023). A few of the carvings in the Vishnu temple at Hanguranketha also show a South Indian influence. Furthermore, it can be concluded that the paintings of Kandy tradition received inspiration from South Indian paintings as the clothing and hairstyles of the female and male figures show the similarity of the painting arts of the two countries.

Images of Gods - An ancient temple located in the Kurunegala district, Ridee Vihara has three parts namely *Maha Vihara, Uda Vihara* and *Waraka welandu Vihara*. Among the frescoes in the upper temple, one can see how the Ramayana, a Hindu epic, has depicted some scenes. Ramayana is one of the most popular Hindu epics in South India. Characters like Rama, Sita and Ravana can be identified as its main characters. Here characters like Rama and Sita are Hindu devotees. The paintings here were created by *Devaragampola Silwath thena*. And on the right side of the upper temple, the image of Lord Vishnu, one of the main deities of Hinduism, has been painted. Lord Vishnu is one of the Dasavatars, one of his avatars is Rama (Kulendiren, 2012). Thus, the fact that Hindu religious stories and characters were created in the Sri Lankan temple reflects the South Indian influence that influenced it.

Animal images - The craftsmen were also keen to use the image of the lion, the vehicle of the goddess Durga, who is the main goddess in Hinduism, as an artistic decoration in Sri Lankan Buddhist temples. It can be seen that the lion statue, which is called by the Dravidian word Sinha, was created at the Ridee Vihara. Next to that lion figure, another lion figure holding a flower in its mouth is also painted. (Ranathunga, 2013). Also, the artisans have not forgotten to add a cow figure to the temple's decoration, symbolizing the Nandi cow, the vehicle of Lord Shiva.

4. Conclusion

Through these facts, we can recognize that the mural paintings with the Kandyan tradition of the Kandy era, which began in the 18th century, were inspired by South India and that the social, economic, and political factors that existed at that time helped. In addition, the main deities of Hinduism such as Vishnu, Shiva, Ganesh, and Pattini, as well as the main animals of Hinduism. Cows, lions, elephants, etc.(Sastri, 1958) are included in the murals of the Kandian traditional temples. Also, the human figures found in the South Indian murals, the use of red color to paint the background, and the techniques applied on the wall in the same way in the Kandian traditional murals have successfully solved the problem of this research. It can be concluded that it has been received immediately. Acknowledgment

5. Acknowledgment

I extend my deepest gratitude to my supervisor, senior lecturer I.M.T. Illangasinghe, for his unwavering support and insightful critiques throughout my research journey. His deep commitment to academic excellence and meticulous attention to detail have significantly shaped this dissertation

My appreciation also goes to the faculty of fine arts and staff in the Department of painting at University of the Visual and Performing Arts, whose resources and assistance have been invaluable. I would also like to acknowledge my peers for their camaraderie and the stimulating discussions that inspired me throughout my academic journey. Their collective wisdom and encouragement have been a cornerstone of my research experience.

6. Keywords

Kandyan Kingdom, morphology, murals, South Indian painting

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Mobile GIS for Cultural Heritage Preservation: A Case Study of Monument Recording in Kandy Heritage City

U. Jinadasa[1], D.M.L.D. Dissanayaka[1], M.L.V. Mihiravi[1], S. Subasinghe[1], S.A.N.N.T. Senarath[1] and S.M.R.N.S.K. Asmadala[2]

[1]*Department of Archaeology, Faculty of Arts, University of Peradeniya, Peradeniya, Sri Lanka.*
ujinadasa@arts.pdn.ac.lk

[2] *Department of English Language Teaching, Faculty of Arts, University of Peradeniya.*

1. Introduction

The utilization of GIS in archaeology has undergone a significant evolution in the past twenty years, driven by technological advancements. This evolution encompasses visualizing historic landscapes and heritage database management to predictive modeling and comprehensive spatial analysis that interpret past human behaviors. Mobile Geographic Information System (MGIS) has become increasingly popular in archaeological data collection in recent years. The MGIS extends traditional desktop GIS beyond the offices and allows individuals and organizations to localize, collect, store, visualize and even analyze geospatial data in the field (Gao & Mai, 2017). This system is used in mobile devices such as smartphones and tablets. Handheld GPS devices which were relatively expensive and commonly used in archaeological surveys in earlier decades have largely been replaced by tablets and smartphones with inbuilt GPS (Chyla & Buławka, 2020). MGIS allows archeologists with minimal or no GIS experience to record site locations, enter attribute data on customized digital forms, and attach photographs (Lindsay & Kong, 2020). Thus, MGIS is user-friendly requiring partial training and no expert knowledge required as in traditional GIS. This method revolutionized archaeology's surveying and recording techniques making it easier, faster, and more cost-effective. Recent studies from Greece and Argentina show that efficiency and cost-effectiveness are the major reasons for using MGIS for large-scale surface archaeological surveys (Fabrega-Alvarez & Lynch, 2022; Sgouropoulos et al., 2024). In this study, ArcGIS Survey 123 has been used to record 488 historically significant buildings both religious and secular- located within the Kandy Heritage City and scattered over 28 square kilometers. Kandy, the last kingdom of Sri Lanka was inscribed in the World Heritage list as the “Sacred City of Kandy” in 1988 under the criteria iv and vi (UNESCO, 2024).

2. Materials and Methods

The workflow of this study contains four main steps as illustrated in figure 1. These four steps consist of survey design, field data collection, data management, and data analysis.

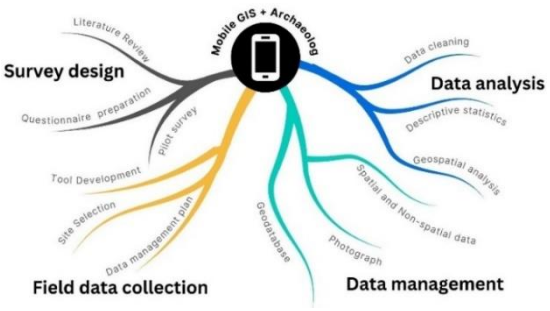


Figure 1: The flow of the study

The study begins with a survey design which involves a literature review, preparing

questionnaires, developing the survey tools, and conducting a pilot survey to test the approach. The next step is field data collection where selected sites are surveyed, data is managed systematically and a geodatabase is created to store spatial and non-spatial information. Data management included spatial and descriptive data with a photograph. Finally, the data analysis was carried out through data cleaning, running descriptive statistics, and performing geospatial analysis to achieve the objectives. In this study, ArcGIS Survey123-a mobile GIS application developed by Esri-was utilized which enables users to collect, manage, and analyze field data through a customizable survey form. It helps users to create forms with different question types such as text, multiple-choice, and geolocation-based inputs. However, the accuracy of the GPS coordinates taken by mobile phones creates a major limitation in MGIS, especially for developing countries like Sri Lanka. In this survey, a mobile GIS approach was used to record the condition of these conserved buildings and to develop a database for analysis purposes. A list of 488 listed monuments in the Kandy Heritage City prepared by the Central Cultural Fund in 1992 has been employed to identify the historically important buildings in the city.

3. Results and Discussion

By using ArcGIS Survey123, 488 listed monuments of Kandy Heritage City by the Central Cultural Fund in 1992 were recorded within a month with a minimum budget. The delays were mainly caused by heavy traffic obstructing the photography of monuments. The survey also revealed that 115 out of these 488 (23.5%) listed monuments are declared by the government gazette as monuments. Over 65% of buildings listed as monuments are commercial buildings while 15% are residential. 5% of them are shophouses with both residential and commercial characters and there were a similar amount of religious monuments as well (Figure 2). Many of these are Buddhist religious monuments located in the Sacred Area of the city which consist of the Temple of the Tooth Relic, the four *develes*, Kandy Lake, Malwatta and Asigriya Temples, and a part of Udawatta Kele forest reserve which primarily contributed to the World Heritage status of the city. While 19% of the listed monuments date back to the Kandyan period mainly being religious, the rest shows early and mid-20th-century British colonial architecture. A typical British colonial period building is two-storied with an arched verandah on the ground floor and a verandah with doric columns on the first floor, the vogue of the era which could also be seen in Colombo and Galle. The oldest monumental buildings still have half-round tiled roofs. Nearly, half of these monumental buildings are two-storied buildings despite their later modifications contributing to the overall streetscape of the city. Approximately 6.5% of the buildings have been renovated to exceed three floors which is not compatible with the traditional streetscape, given that the prescribed building height in the city is 40 feet. While 9% of the structures have remained unchanged over time, 86% have been modernized due to the commercialization and urbanization of Kandy, the second-largest city in Sri Lanka, and the economic and administrative capital of Central Province. The addition of new floors and modern glass shop windows could be seen in most of these modernized buildings despite the heritage regulations. The preservation status of religious monuments is notably superior to that of secular buildings, including shops and residential structures which are also designated as monuments. Furthermore, the adaptive reuse of some of the heritage monuments funded by the government like Giragama Walawwa in Yatinuwara Veediya has become very successful.

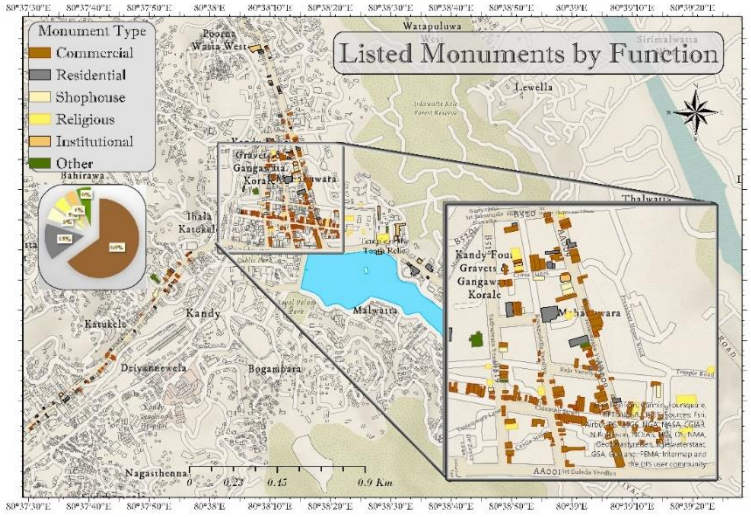


Figure2: Listed monuments (1992) by current function, Kandy Heritage City

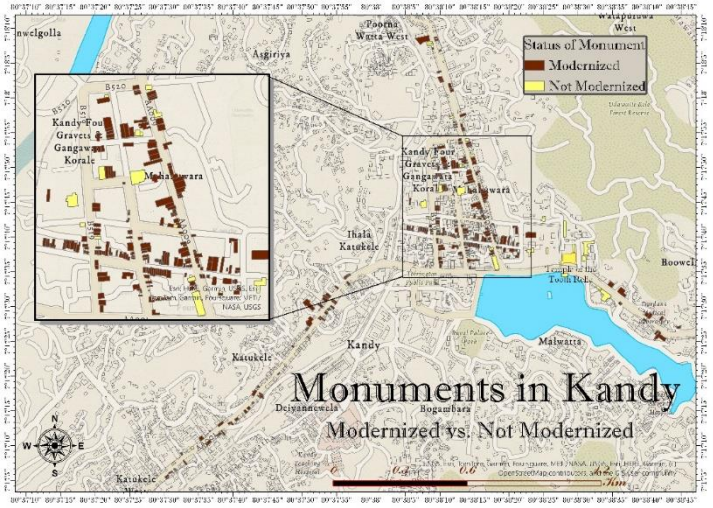


Figure 3: The current condition of listed monuments (1992): modernized vs. not modernized

4. Conclusion

This research confirms that ArcGIS Survey 123 is an efficient and cost-effective MGIS method to record and analyze a large number of monuments scattered over a large area. Variations between the actual and recorded coordinates through mobile GIS reduce the accuracy of the data, posing a major limitation in this study. Moreover, the absence of a geospatial database to accurately cross-reference addresses within the study area to their exact coordinates poses an additional challenge throughout the study. Despite these limitations, the study demonstrated that MGIS is a cost-effective and efficient method for low-budget heritage monument recording projects, particularly in countries like Sri Lanka which is currently experiencing an economic crisis. The survey revealed that over 85% of the listed monuments by the Central Cultural Fund at the inception of World Heritage in Kandy have been modernized, nonetheless the strict heritage regulations. 85% of the listed monuments are privately owned shops, houses, and shophouses that have evolved over three decades to prioritize contemporary business and living standards. This is a natural process that happens in any city with the time being. In contrast, the religious monuments of Kandy are well preserved when compared to the secular buildings. The Sacred Area of the city, which includes the Temple of the Tooth Relic, four

devales, Kandy Lake, Malwatta and Asgiriya Temples, and part of Udawatta Kele, is recognized as a World Heritage property in legal terms. Consequently, the monuments in this area receive more consideration in terms of heritage conservation. Thus, religious buildings are prioritized in the conservation process as they contribute to the authenticity of the World Heritage City with spiritual significance attracting visitors. Although height restrictions are mostly maintained in the streetscape, the older appearance of listed monumental buildings in the commercial area, primarily the shops and shophouses has diminished leading to ordinary modern streetscapes in Kandy which is notably a historic city. The research emphasizes the requirement of initiating proper monitoring mechanisms to protect the listed monuments as well as the ability to use cost-effective and efficient methods like MGIS in this process. However, the modernization and the change of the conserved secular buildings also show the requirement of heritage laws that can address the contemporary needs of the city dwellers and the business community. The work also shows that the adaptive reuse of a few commercial buildings identified as monuments has been remarkably successful which has slowly created a sustainable trend to renew business places protecting the heritage value. In conclusion, this research, based on MGIS data collection and analysis techniques, emphasizes the importance of giving considerable attention to protecting the traditional streetscapes of Kandy, as the city's historicity lies not only in the Sacred Area but in the whole city itself as a historic urban landscape.

5. Acknowledgment

The authors would like to express sincere appreciation for the support of the University of Peradeniya for funding this research [Grant Number: URG/2023/40/A].

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The Environmental Management of Cave Shelters: Special Reference to Rajagala Buddhist Monastery in Sri Lanka

M.D.I.K. Abeynayake[1], K. Hettiarachchi[1], K.M. Alexander[1] and S.N. Jayasinghe[2]

[1] *Department of History and Archaeology, University of Sri Jayewardenepura, Sri Lanka.* inoj@sjp.ac.lk

[2] *Department of Archaeology, Colombo, Sri Lanka.*

1. Introduction

The cave shelters have been commonly used by unitary establishments for the monks since ancient times. Having considered historical evidence, the monks were affectionate about staying in the natural cave to reside and to maintain a simple life according to the Buddhist code of discipline. The concept of cave shelters is mostly related to rock-cut or natural caves serving different purposes, such as meditation, ritualism, and accommodation for members of the Buddhist monks. Having considered those facts, Rajagala is the Buddhist monastic place where more than a hundred natural cave shelters spread out over 983 acres on the Precambrian inselberg in the eastern province, belonging to the dry zone. According to the literature and inscriptions, this site had been established by King Lajjitissa (119-109 BC), the eldest son of the King Saddhatissa (137-119 BC), during the Anuradhapura reign (Mahavansa, 1967; Deepavansa, 1970). The inscriptions state that the Kings and their followers had donated numerous caves to the monks for residence purposes (Paranavitana, 1970; Hettiarachchi & Dayananda, 2018). Most of the caves in the forest were being converted into dwelling places with some construction such as a foundation, floor, wall, window, and door using natural materials, such as clay, sand, stone flakes, and bricks, considering the existing environment, and they had tried to manage the small watercourses flowing through the caves, the landscape with trees and rocks was enhanced to add spiritual condition to space. Slight research has been done so far on the eco-friendly concept in architectural features and environmental preservation management of the monastery (Rajapaksha and Nandasiri, 2016; Karunarathna, 2023), but this research conducted on how the environment leads to spiritual development has been conducted to a lesser extent; therefore, the research aim is to discuss the impact of the environmental characteristics was considered to arrange caves as the residence places for the monks.

2. Materials and Methods

This research was carried out according to qualitative and quantitative methods including the field survey and literary sources. 83 cave shelters have been surveyed according to the base map of the site, considering the main four directions of the entire area. Each cave monument is documented by using GPS Magellan eXplorist 310 and 510 GPS to take the coordinates (N^0E^0) and a Bosch Laser Distance Meter GLM 30 has been used to take measurements of the features of the caves. The available physical topographies on each cave have been recorded using a prepared document in Microsoft Excel for analysis purposes; the geographical location, rock, forest type, nearest water resources, distance from the water supply, and types of raw materials to be built the cave-dwelling are included in the datasheet. All statistical records are analyzed using Microsoft Excel and GIS; other physical features are classified from content and thematic analysis methods.

3. Results And Discussion

Environmental management is the practice of organizing human activities to limit their impact on the natural environment; it can encompass the protection of the land, flora, fauna, and bodies of water (Safeopedia, 2024). Several uses of this concept were identified in cave shelters in Rajagala premises (Fig.1). Rajagala inselberg can be seen as natural rock shelters that were extensively used to prevent weather conditions, therefore, those caves were converted into living places by pre-historic men, and then members of the different faiths in the historical period, especially Buddhist monks, were widely used as monasteries during the early Anuradhapura period, especially 2,300 years B.P. Rajagala forest, part of the Nuwaragala reserve, is classified into tropical dry monsoon (mixed evergreen); apart from the western area, the eastern part where the caves are more widespread, is covered in high dense forest; the landscape is conceptually managed without massive interference with the rocks scattered around the cave dwellings made of granitic gneiss, those transform into a spiritual place, adding further values to the ecological factors.

Cave architecture with very minor interventions, such as removing stone flakes from shelters, had been made, and it was expanded with additional features such as the foundation, floor, wall, roof, and drip ledge, and was constructed more wisely with natural raw materials while respecting the surrounding environment. Most of the walls and foundation were made of stone flakes which were collected from the environment, and during cave creation, furthermore, clay and sand were widely used as binders, which were collected near the site, according to the sand particles, all are composed by the near streams (Abeynayake et al., 2023).

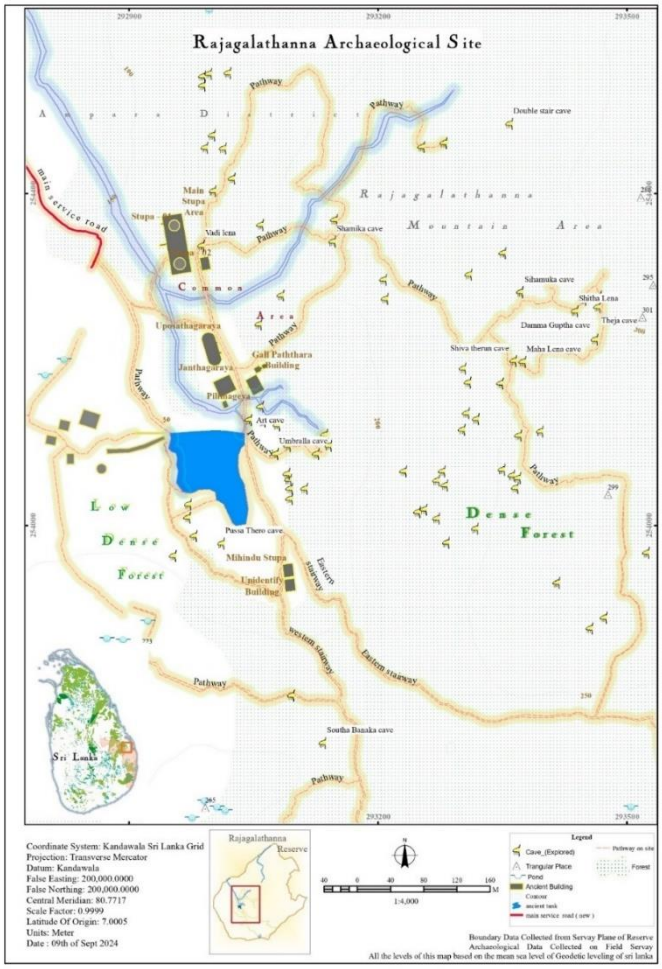


Figure 1. Rajagala archaeological reserve and distribution pattern of the cave shelters

Furthermore, streams (small canals) can be seen near 34 caves, which become active during the rainy season, and which water sources remain after the rainy season at least for three months, but in some places, water collected in the form of the wet patch in the lower valleys, small streams flow through some caves during the year, those water sources had been managed for their daily water consumption (both dining and bathing), 'cave number 60' the water drainage made of stone on the inside to collect and distribute water for drinking purposes. According to the inscription, King Lajjathissa had established twenty-five cool caves (natural air condition wind blows through the rocks where the water flows) for the monks (Paranavithana, 1970), yet, only two of the caves (named Dattha and Dammaruchi) can still be seen, 68 caves were facilitated with one more drip ledge to manage rainwater, and Shamika cave has 18 drip ledges put on the façade to control the rainwater to make a better living place for the monks.

The surrounding environment conservation concepts were discussed in the philosophy of the Buddhist doctrine (Theragāthāattakathā, 2008; Visuddhimārgaya, 2009). Monks always thought of maintaining the physical environment for mental relaxation (Chullavaggapali, 2005). At the same time gardens were used for monasteries; they were also approved by the Buddhist doctrine and always contained awareness of the environment and its use. Considering the Rajagala premises, monks had used rock shelters and its suburbs with the knowledge of environment management related to the philosophy of Buddhism during the 3rd century, BC to 10th century AD.

4. Conclusion

The monk, who had resided in the cave premises for a long time, managed the surrounding environment with the experience of traditional living style. The rock shelters were extensively used to prevent weather afflictions, and they were continuously prepared properly to reside since ancient times, therefore, cave shelters were the most suitable habitat the natural environment had not been greatly altered, nevertheless, only managed to accommodate where they were, for the monks who followed the lonely and simple lifestyle according to Buddhist doctrine, for thousands of years, the monks who lived in cave monasteries had a good understanding of the physical features of the caves and the surrounding environment to fulfill their minimum needs. Future research should elucidate the scientific background to the selection of methods to keep the cave interior cool based on environmental factors.

5. Acknowledgment

I would like to express my gratitude and appreciation to the previous directors of the Rajagala Archaeological Project and acknowledge and highly appreciate the vital role of the archaeological field survey that was done by. Mr. Suranga, Mr. Ruwan, Mr. Uren, and Mr. Gayan work at the Department of Archaeology in Colombo.

6. Keywords

Cave, Environment, Management, Buddhist doctrine

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The Role of Community Participation in Heritage Conservation: Lessons from Sri Lankan Buddhist Monasteries

K. M. Theekshana Pasan Deepaloka

University of Peradeniya, Peradeniya, Sri Lanka. a19117@arts.pdn.ac.lk

1. Introduction

In heritage conservation, there is indeed a greater realization for involvement to be shifted to the level of the local community through an inclusive model, from an entirely technical and top-down one where the voices and experiences of the most connected with the cultural site are given due importance. The Buddhist monasteries in Sri Lanka are more than a place of worship but bearers of rich culture, spirituality, and history. The sites, examples of which include Dambulla, Aluvihara, and Ridi Viharaya, have played an indispensable role in the construction of the religious and social portrait of Sri Lankan society (De Silva, 2016). They form part of the identity of the local communities and provide a focus for religious practice, communal gatherings, and cultural learning.

The special relationship between such monasteries and the host communities sets an example to be followed in possible sharing in heritage management. Often, communities within which these monasteries exist are responsible for their maintenance and preservation, while people benefit spiritually, socially, and economically from proximity to holy sites (Abeysekera, 2018). This, in turn, calls for a very strong case of participation, which shall recognize local knowledge, traditions, and practices as an integral part of the conservation process.

It instills in the people within the community a sense of ownership and responsibility, which is important to ensure that the management of cultural resources is carried out in a sustainable manner. A community involved in the conservation of its heritage is in a better position to champion its protection from such external stresses as urbanization, tourism, and neglect (Perera, 2012). Moreover, the involvement of the local people furthers conservation practice by adding the essential elements of tradition and culture that may have been left out in the treatment in a formally identified conservation framework (Fernando, 2015).

The extended abstract is set out to investigate the role of community participation in the conservation of Sri Lankan Buddhist monasteries through lessons learned from specific case studies. The following research focuses on trying to extract effective practices applicable to broader heritage conservation efforts in Sri Lanka and, to a greater extent, globally from the experiences gained (Jayasuriya, 2010). This will help add to the body of knowledge on how community involvement can make sure that heritage management is considerate of principles of sustainability for resilient cultural landscapes that continue to pay their respects to tradition, yet remain mindful of contemporary needs.

The time has come to link the technical expertise with local knowledge as heritage conservation proceeds. This research will shed light on including community participation in the modus operandi of conservation practices so that the narrative about the cultural heritage can be enriched and protection ensured for generations to come.

2. Materials and Methods

This study is based on a mixed-method approach to investigate community involvement in the conservation of Buddhist monasteries in Sri Lanka. In this research, three major sites-Dambulla, Aluvihara, and Ridi Viharaya-are considered, each representing unique variations from different aspects of community participation in heritage conservation. The key ethnographic methods employed in collecting data during this fieldwork with key stakeholders-like monks, temple custodians, local residents, and community leaders-included participatory

observation, in-depth interviews, and focus group discussions (Perera, 2012).

In-depth interviews were designed to capture information on the level of community engagement in conservation activities, including financing, volunteering, and religious and cultural ceremonies. The motivations behind such engagement and perceived benefits from this involvement were also intended to be captured (Abeysekera, 2018). Furthermore, focus group discussions have been important in increasing an understanding of the dynamics at community level with regard to collective action and shared responsibilities in heritage management (Jayasuriya, 2010).

The religious festivals and events on conservation provided an opportunity to observe the interaction of the local communities with these heritage sites. Such events documented their communal bonding with their cultural heritage, therefore further strengthening the resolve for conservation (De Silva, 2016). Archival research was also done, reaching out to historical documents, policies on conservation, and earlier studies done on the subject of community involvement in heritage management (Gunawardana, 2004).

These therefore provided a very in-depth approach to analyzing how community participation shapes the conservation landscape of Buddhist monasteries in Sri Lanka. Synthesizing qualitative data from interviews and observations along with a historical context, the research tried to deduce successful models of community engagement that could inform future initiatives of conservation. This kind of approach underlines not only the importance of traditional knowledge but also the relevance of establishing collaborative relations between the communities and formal entities of conservation (Fernando, 2015).

3. Results and Discussion

These research findings therefore suggest that community ownership and participation go a long way in successfully conserving these Buddhist monasteries of Sri Lanka. In Dambulla, for instance, the locals have made them feel that this is their property by being very active in raising funds and organizing volunteer cleanup campaigns. It aids in keeping the site physically but helps the community to reaffirm their ties and cultural identity (Abeysekera, 2018). Community members indicated that through the conservation activity, they were being brought much closer to their heritage and had increased commitment to preserve the sites for the future generation.

Similarly, Aluvihara is an example of what happens when the local artisans and devotees are working with a site to safeguard the ancient manuscripts. The community-led workshops on traditional preservative techniques have provided the passing on of the basic skills to the younger generations while reinforcing the essence of cultural heritage (Fernando, 2015). Participants thus felt proud about the contribution they were in a position to make towards the conservation of their history and also proved a point about how local knowledge could act in complementing formal conservation practices (Perera, 2012).

Ridi Viharaya thus helps in showing how a communitarian approach to heritage management might be linked with governmental policies. Challenges here include insufficient resources within frameworks and pressures from tourism, though the people of the locality are genuinely involved in site conservation (Jayasuriya, 2010). This study characterizes the fact that while tourism can provide a critical source of funding for conservation, at the same time it carries a certain risk of being destructive to the authenticity and integrity of heritage sites (Gunawardana, 2004).

Community-based initiatives are more resilient, and from this premise, the need to empower local stakeholders forms a very integral part of sustainable heritage conservation. Community involvement within formal conservation frameworks offers a clear manner in which respect

and honor for traditional practices can be guaranteed, in turn nurturing relevance and therefore promoting better preservation of Sri Lanka's rich cultural heritage (De Silva, 2016).

4. Conclusion

The paper, therefore, underlines the pivotal importance of community participation in the conservation of Buddhist monasteries in Sri Lanka, reflecting how active involvement at the local level inspires a sense of ownership and responsibility that bears directly on the sustainability of heritage management. Drawn from case studies across Dambulla, Aluvihara, and Ridi Viharaya, one finds that community involvement has helped not only in the physical preservation of such sites but also in enhancing social bonding and cultural identity (Abeysekera, 2018; Perera, 2012). We will be able to develop better strategies by incorporating traditional knowledge with formal conservation, which would acknowledge traditional values but would also provide the urge for new challenges (Fernando, 2015). Empowering the communities with respect to conservation will make it worthwhile and sustainable for preserving the rich cultural heritage of Sri Lanka and ultimately make it relevant for future generations as well (Jayasuriya, 2010).

5. Acknowledgment

I would like to express my appreciation to the Department of Archaeology and the custodians and communities of Dambulla, Aluvihara, and Ridi Viharaya for their valuable support and contributions to this research.

6. Keywords

Community Participation, Heritage Conservation, Buddhist Monasteries, Sri Lanka

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The Tank Systems in the Dry Zone Sri Lanka: Evolution, Management and Traditional Knowledge

P.B.N. Abeywardana

Department of Archeology and Heritage Management, Faculty of Social Sciences & Humanities, Rajarata University of Sri Lanka, Mihintale, Sri Lanka. nuwan.abeywardana@gmail.com

1. Introduction

The dry-zone water-harvesting and management system in Sri Lanka is one of the oldest historically recorded systems in the world (Gunawardana, 1971). A substantial number of ancient sources mention the management and governance structure of this system suggesting it was initiated in the 4th century BCE and abandoned in the middle of the 13th century CE. In the 19th century CE, it was reclaimed under the British colonial government (Gunawardana, 1971; Murphey, 1957). This research predominantly aims at identifying the temporal development and socio-economic meaning of the water harvesting and management system through a systematic analysis of the written and epigraphic sources. Consequently, a critical analysis was conducted to examine the present-day management system and the preservation of indigenous characteristics for a sustainable utilization of the resource in future.

The key research questions of this research are as follows:

- Do the analyzed sources engender potential for the derivation of information on different aspects related to the spatial, temporal and administrative development of the ancient water harvesting and management system in Sri Lanka?
- What are the main characteristics, and which socioeconomic implications are visible in the evolution of ancient water harvesting and management systems in the Dry Zone of Sri Lanka?
- Which meaning do sustainable indigenous management systems have in present day agriculture in the Dry Zone of Sri Lanka?
- Which traditional knowledge related to the water harvesting systems is still practiced today in a local context?

2. Materials and Methods

This research study was conducted using an interdisciplinary research approach combining different research methods. In general, two major approaches were taken to analyze the socio-economic conditions and implications of past cultures: a) Analysis of epigraphical sources, primary and secondary literature, historical maps and archaeological findings were combined to identify and reconstruct the socio-economic conditions of the ancient Rajarata kingdom during Anuradhapura and Polonnaruwa periods. b) Standardized qualitative interviews and workshops with the main stakeholders involved with the management of the Dry Zone hydraulic landscape were conducted, for the documentation of the present governance structure, land use practices, and existing indigenous knowledge.

Sri Lanka is an island situated in the Southern tip of the Indian peninsula with the total extent its landmass being about 65,610 km^2. Low land Dry Zone Sri Lanka is the main focus for this research study.

3. Results and Discussion

In first case study, 255 text passages containing 837 different records on ancient irrigation were compiled as a database for the period from the 5th century BCE to the 10th century CE to reconstruct the diachronic developmet of the system. The second case study aims to identify the ancient water management and governance structure in the Dry Zone of Sri Lanka through a systematic analysis of ancient sources.

Furthermore, colonial politics and interventions during reclamation have been critically analyzed. Basis for this was the already existing database from which 222 text passages containing 560 different records contained relevant information. 201 of these text passages were captured from lithic inscriptions and 21 text passages originate from the chronicles. The spatial distribution of records in general largely corresponds to the extent of the Dry Zone and northern intermediate zone. The analyzed data are not equally distributed throughout the investigated period and show a distinct peak in the 2nd century CE. In conclusion, the conducted analysis documents the potential of the analyzed source genres for the derivation of information on different aspects related to the spatial, temporal and administrative development of the ancient water management system in Sri Lanka.

The third case study aimed to analyze the current management practices and existing indigenous aspects of the Dry Zone irrigated agricultural system from the viewpoint of farmers who are the main stakeholders of the system. Altogether 49 semi-structured interviews were conducted in seven villages in the Anuradhapura district and a detailed survey was conducted in the village of Manewa with a mixed research approach. The basic elements of the indigenous landscape, agricultural practices and management structures based on Farmer Organizations were mapped and examined in detail. The analysis of results shows that the sustainability of the indigenous agricultural system is vulnerable to rapid changes due to modernization, market changes, education levels, and inconsistent management decisions.

A systematic analysis of written and epigraphic sources was a research desideratum and thus their potential as knowledge base for extracting information on the tank cascades systems was not clear. The first case study clearly shows that these source genres have a high potential for the derivation of information on different aspects related to the spatial, temporal, and administrative development of ancient water harvesting and water management systems in Sri Lanka. Although the inscriptions, classical texts, and chronicles of Sri Lankan historiography were written following a specific agenda, they still provide trustworthy information on the development of the ancient water harvesting system. Spatial and temporal distribution of the records is a key factor for the trustworthiness of the records, emphasized during the total analysis. The analysis of each source genre showed that the spatial-temporal distribution of the records depends on several factors:

- The location of the ancient capitals and their hinterlands
- The core religious areas and the location of major ritual centres
- The areas of research interest from the colonial times to present
- The Colonial and Post-Colonial political landscape
- The availability of resources for lithic inscriptions
- The evolution of the Buddhist monastic institution
- the evolution of the kingdoms and their socio-economic implications
- The evolution of social organization

- Indian influences and World political geography
- The personal interests and influences of individual rulers

In a similar manner, the spatial and temporal distribution of the historical records on water management and governance together with their qualitative information reflect the evolution of the water management and governance systems in the Dry Zone of Sri Lanka.

In contrast, from the beginning of the Sri Lankan hydraulic civilization the vast multitude of small village tanks were developed and managed by local communities with less sophisticated technical skills. Due to the sustainable decentralized management structure, the small tank systems existed intact for more than two millennia, even after the Dry Zone was abandoned during medieval times. Different layers of management strategies were implemented, blending centralized major irrigation schemes with locally controlled small irrigation systems. Buddhist temporalities were used to link the hinterland with the main settlements, not in a secular administrative fashion but in a spiritual and intangible relationship (Coningham et al., 2007). Likewise, the ancient capital Anuradhapura and its hinterland display a unique example of a water management and governance system developed in harmony with a dual patronage between rulers and local people. This conclusion is partly contrary to Karl Wittfogel's hypothesis (Wittfogel, 1959) that state societies in Asia depended on the creation of large-scale irrigation works which required organized, forced labor and centralized bureaucratic management.

After nearly five centuries of abandonment, the water management and governance systems in the Rajarata kingdom were reutilized under the British colonial regime *(Alwis, 1986; Brohier, 2006; Karunanada, 2006)*. However, the initial intervention was caused by political and economic reasons rather than to reactivate the traditional management mechanisms. British colonial rulers only slightly changed the few main elements of the traditional system such as the compulsory labor system called Rajakariya and the Buddhist temporalities based on service and land tenure *(Alwis, 1986; Mangalaruby, 2015)*. However, in the later stages British colonial rulers tried to adopt the community-based sustainable nature of the traditional governance structure as documented by the introduction of the Vel Vidane system for the small tank cascades.

Throughout the world, for millennia people developed locally adapted agricultural systems. These "indigenous" agricultural systems were highly based on traditional knowledge and were continuously adapted to the changing environmental, social and political conditions; they represent local knowledge, forming a vital combination of social, cultural, ecological and economic services to humankind *(Koohafkan & Altieri, 2011)*. Unlike modern agricultural technologies, indigenous methods often addressed the efficient utilization of resources and helped to preserve cultural diversity and biodiversity with collective involvement. The Sri Lankan small tank cascade systems are an example of such an indigenous agricultural system. They were initiated in the heyday of the ancient kingdoms and since then have undergone several transformation processes. In the 1960s, these processes were triggered by the Green Revolution. Until the Green Revolution the basic elements of the indigenous system and the main ecological and socioeconomic components of the landscape were widely preserved. Current research suggests that these basic elements of the landscape still exist and function to

a certain degree despite the forces of modernization, population pressure, economic changes and educational development.

The management structure and mechanisms were changed from the hereditary headman system to a community-based Farmer Organization system. The transformation into a participatory approach seems a productive and attractive evolution of the system. However, the in-depth analysis of the perception of the main stakeholders of the systems-the farmers-revealed that the inseparable bond they had with the landscape and the entire agricultural system was threatened by the current Farmer Organization system: the spiritual connection was converted into a financial and benefit-oriented system. Within the previous Vel Vidane system, the farmers participated directly in the tank maintenance and the holistic management of the village tank landscape with its irrigation agriculture. In contrast, within the current Farmer Organizations system, the farmers contribute to the maintenance as daily labourers. With the onset of the Farmer Organizations system the farmers became increasingly alienated from the landscape, leading to the deterioration of the indigenous agricultural system.

4. Conclusion

This research contributes to the knowledge base of water resource management by addressing policy dimensions, with a special reference to traditional and indigenous knowledge base. Socio-economic implications on the development of the water harvesting systems were systematically compiled and serve to interpret the evolution of the water harvesting systems in a broader context.

Anuradhapura and its hinterland are considered as the center of the ancient hydraulic civilization in Sri Lanka. During past decades, the management process of its heritage focused on its archaeological and cultural attributes. The cultural values of the surrounding cultural landscapes, with its multiple reciprocal human–environmental interactions and sophisticated water harvesting systems, being rooted in the ancient Anuradhapura period, are not yet the focus of heritage management.

The development of an integrated management approach, to protect this 2,000-year-old cultural landscape, would be a great challenge for future interdisciplinary research and heritage management. From the perspective of landscape archaeology, the major objectives are to enhance the understanding of the development of the ancient water harvesting systems and its effects on the landscape and cultural development, to investigate traditional management aspects and traditional knowledge related to these systems, and to adopt the management strategies of these systems to handle possible socio-economic and environmental evolutions in the future.

5. Acknowledgment

I sincerely thank the Volkswagen Foundation for funding this research project as part of the joint research project “Tank cascade systems as ancient measures of integrated Watershed Managements in the dry zone of Sri Lanka” between the Freie Universität Berlin and the University of Peradeniya (Project-ID: 88578).

6. Keywords

Water management, Water governance, Landscape Archaeology, Rajarata

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IRSSSH 2024

International Research Symposium on Social Sciences and Humanities

Track 2
Communication and Mass Media

Promoting Awareness and Action for Sustainability



A Study on the Impact of the Online Safety Act No. 09 of 2024 on Social Media Content Creators

K.H.E. Gunasingha

Department of Drama Cinema & Television, University of Kelaniya. Post Graduate Institute of Humanities & Social Sciences, University of Peradeniya. gunasinghak.h.e18@gmail.com

1. Introduction

In the digital age, social media has emerged as a powerful platform for content creation, public discourse, and activism, transforming how information is disseminated and consumed. However, with this shift comes the challenge of regulating harmful content, misinformation, and online abuse. The Online Safety Act No. 09 of 2024 was introduced in Sri Lanka as a legislative response to these challenges, aiming to protect individuals and institutions from the harm caused by the misuse of digital platforms. The Act specifically addresses concerns about the communication of prohibited statements, incitement to violence, and content that undermines national security or religious sentiments.

This study focuses on the implications of the Online Safety Act for social media content creators, who are among the most influential users of these platforms. These creators not only entertain and inform their audiences but also contribute to public debate on sensitive issues, such as politics, religion, and culture. As the Act imposes stringent penalties for false statements, incitement to rioting, and online personation, content creators must navigate these legal complexities while maintaining their creative freedom and expression. The research aims to evaluate the impact of the Act on content creators' ability to operate freely, the extent to which it induces self-censorship, and its broader implications for digital rights and freedom of expression in Sri Lanka.

2. Materials and Methods

This study employed a mixed-methods research design to gather both quantitative and qualitative data on the impact of the Online Safety Act on social media content creators. The quantitative component consisted of an online survey distributed to 100 social media content creators, including influencers, independent journalists, bloggers, and activists, from various fields such as entertainment, news, social commentary, and marketing. The survey captured data on their knowledge of the Act, perceived risks of prosecution, changes in content strategy post-enactment, and instances of self-censorship.

For the qualitative component, 20 in-depth interviews were conducted with selected participants from the same group. The interviews explored their personal experiences and concerns regarding the Act's enforcement, especially provisions such as Section 12 (false statements threatening national security) and Section 16 (insulting religious beliefs). The analysis also incorporated a review of relevant legal literature, policy papers, and international case studies on the regulation of digital spaces to compare the effects of similar legislation in other countries *(Jones & Clarke, 2022)*. Ethical considerations were taken into account, ensuring participant confidentiality and the voluntary nature of participation.

The research also employed content analysis to review online publications and social media posts related to the enactment and enforcement of the Act. Additionally, existing legal documentation and critiques of the Act were consulted to provide a comprehensive

understanding of its scope and application *(Harris & Nguyen, 2023)*. A focus was placed on the possible legal interpretations of key provisions, which could lead to broader implications for free speech and digital expression.

3. Results And Discussion

The study's findings reveal that the Online Safety Act has significantly altered the landscape for social media content creators in Sri Lanka. Of the 100 survey respondents, 65% reported adjusting their content creation practices due to concerns about violating the Act, with 45% stating that they have engaged in some form of self-censorship. A notable 30% indicated they had refrained from posting content related to politics, national security, or religion, fearing the legal consequences outlined in Sections 12 and 16.

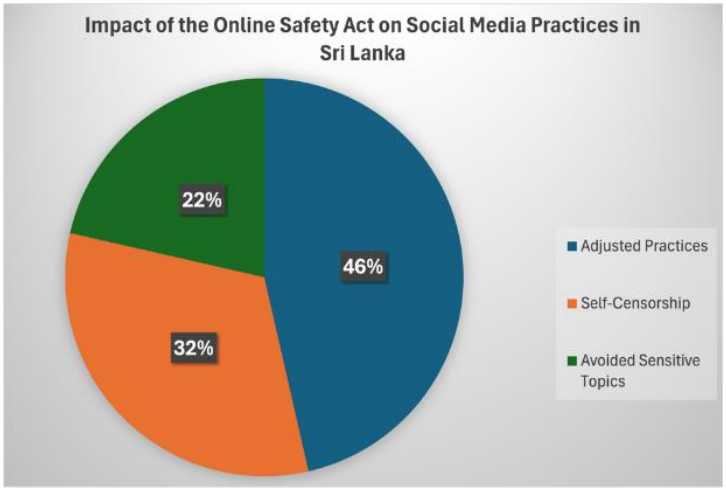


Figure 1: Impact of the Online Safety Act on Social Media Practices in Sri Lanka

The Interviews provided deeper insights into the specific challenges content creators face. Many interviewees highlighted the vague and broad definitions within the Act, particularly the terms "false statements," "national security," and "religious feelings," which leave room for subjective interpretation by authorities. This vagueness has led to a climate of fear, where content creators are unsure of where the legal boundaries lie, prompting them to avoid controversial or sensitive topics altogether *(Perera, 2024)*. Additionally, creators working in satire or political commentary felt disproportionately targeted, as their content is more likely to be scrutinized under the provisions of the Act.

Further, the Act's provision on online personation *(Section 18)*, aimed at curbing identity theft and fraud, raised concerns among influencers and bloggers who often use pseudonyms or alter-egos as part of their online personas. While the Act seeks to protect against online deception, the fear of misinterpretation of this provision has discouraged some creators from experimenting with creative identity presentations in their Content *(Smith, 2021)*.The Act's intent to prevent online harm, particularly in cases of incitement to violence or rioting *(Section 14)*, was generally supported by respondents who acknowledged the dangers of unchecked misinformation. However, the broad scope of the Act raised concerns about its potential to suppress dissent and curb legitimate political activism. Interviewees expressed worry that their criticism of government policies or cultural norms could be construed as incitement, leading to potential legal action *(Harris & Nguyen, 2023)*. This sentiment was particularly prevalent

among independent journalists and political bloggers who rely on the digital space for alternative media coverage.

4. Conclusion

Conclusions This study provides a comprehensive analysis of the Online Safety Act's impact on social media content creators, revealing several important principles and concerns. First, the Act's broad and ambiguous language has led to widespread self-censorship among content creators, particularly those engaging in political, religious, or social commentary. While the Act's objectives of curbing misinformation and protecting public order are clear, its provisions risk stifling free expression and creativity in Sri Lanka's digital space. The study highlights that content creators feel vulnerable to arbitrary enforcement due to the lack of clear legal definitions, which disproportionately affects creators working in fields where controversy and critique are integral to their content. Theoretical implications suggest a growing tension between state control over digital spaces and individual rights to freedom of speech. The practical implications indicate the need for revisions to the Act, particularly in terms of clearer guidelines and protections for content creators who engage in legitimate critique and expression.

The findings of this study recommend several steps forward, including a review of the Act's provisions to ensure clarity and prevent misuse, as well as the introduction of mechanisms that safeguard freedom of expression. Without these changes, the Act risks creating a chilling effect on Sri Lanka's vibrant social media landscape, limiting the diversity of voices and stifling critical debate. Future research could explore long-term effects as the Act's enforcement evolves and the potential for legal reforms to protect digital freedoms.

5. Keywords

Self-censorship, Freedom of Expression, Digital Rights, Content Creators, Online Safety Act.

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Financial Impact of Online Education in the Film and Television Studies Degree Program: With Special Reference to the University of Kelaniya

D.M.C.N. Dassanayake

Department of Drama, Cinema, and Television, University of Kelaniya. Kelaniya, Sri Lanka.
chinthanirmalie@gmail.com

1. Introduction

The shift to online education due to the COVID-19 pandemic has significantly changed students' lives worldwide (Altun, 2023). For students in specialized fields like Film and Television Studies at the University of Kelaniya in Sri Lanka, these changes are even more pronounced. This study focuses on how online education has affected the financial status of these students, considering costs, internet expenses, and their preferred ways of learning.

Online education provides flexibility, enabling students to continue their studies amid disruptions. However, it introduces new financial burdens, particularly in Sri Lanka, where the pandemic has exacerbated economic challenges. With reduced household incomes due to the country's economic downturn, students struggle to afford the additional expenses of online learning, such as internet and digital devices (Lakmal, Khashunika, & Yatigammana, 2021).

While students may save on commuting and related expenses, online learning often requires increased spending on internet connections and digital devices. Film and Television Studies students, in particular, rely on high-speed internet for tasks like video streaming, editing, and using media-intensive applications (Kebritchi, Lipschuetz, & Santiague, 2017). In Sri Lanka, where economic challenges are prevalent, studying this group highlights the financial strain students face to stay connected and meet their academic requirements.

This research is essential for understanding the financial impact of online education on Film and Television Studies students at the University of Kelaniya. The findings will help educational institutions and policymakers create better support systems for students in this new learning environment.

Research Problem: How has the shift to online education impacted the financial expenditures and cost-related challenges of Film and Television Studies students at the University of Kelaniya?

Research Objectives:

- To assess the perceptions of Film and Television Studies students regarding the cost-effectiveness of online education compared to traditional, in-person education.
- To identify the preferred mode of online learning for Film and Television Studies students at the University of Kelaniya, with a focus on its suitability for their academic needs.

2. Materials and Methods

When discussing the online learning impact on students, online education has impacted the financial situation of students, making it essential to evaluate such financial stresses (Dawson, 2006). This research aims to examine the financial impact of the transition to online education on Film and Television Studies students at the University of Kelaniya during. The study employs a quantitative methodology to analyze how online learning affects students' income,

educational expenses, and financial management. By gathering numerical data, it aims to identify trends and relationships, providing insights into the overall economic impact of online education on students.

Population: All the Film and Television Studies undergraduates, 225 students from the University of Kelaniya, Sri Lanka constituted the population of this study. The population encompassed male and female students hailing from various regions across the country.

Sample: For the sample, all the final year undergraduates (47 undergraduates) in the Film and Television Studies degree program at the University of Kelaniya, were selected using the purposive sampling technique. Final-year students were chosen as they represent the group with the longest exposure to online education throughout their academic program. This extended experience provides richer insights into the financial challenges posed by the transition to online learning.

Data Collection Method: A set of 10 questions is distributed to final year students enrolled in the Film and Television Studies degree program at the University of Kelaniya, Sri Lanka, using a Google Form. Students were informed about the study's purpose and provided consent before participating. Ethical measures, including anonymity and confidentiality, were upheld. The questionnaire collects data on students' financial situations, resource access, and perceptions of their online learning experiences.

3. Results and Discussion

According to Objective 01, which aims to assess the perceptions of Film and Television Studies students at the University of Kelaniya regarding the cost-effectiveness of online education compared to traditional, in-person education, here are the results.

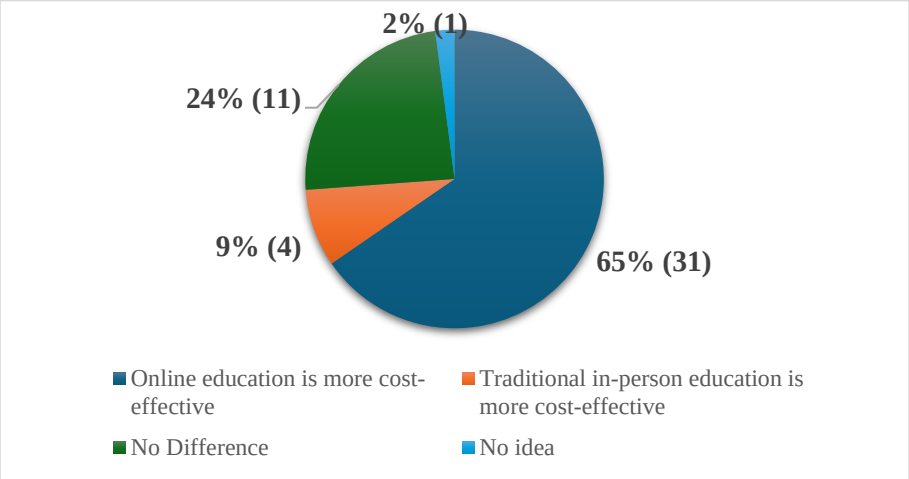


Figure 1: Opinions on the cost-effectiveness of online education compared to traditional education

The chart illustrates perceptions of the cost-effectiveness of online versus traditional in-person education. A majority (65%) view online education as more cost-effective, while 9% believe traditional education is more economical. Another 24% see no difference in cost-effectiveness, and 2% are uncertain or have no opinion. According to Objective 02, which aims to identify the preferred mode of online learning for Film and Television Studies students at the University of Kelaniya, with a focus on its suitability for their academic needs, here are the results,

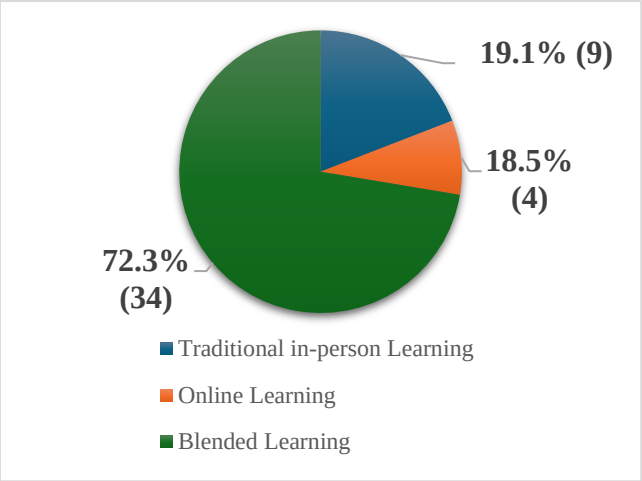


Figure 2: Preferred learning mode of Film and Television Studies undergraduates

In the chart, it's evident that among all the responses received, undergraduate preferences for different learning modes vary significantly. Notably, 73.2% of respondents express preference for blended learning, while 18.5% favor online learning. And 19.1% of respondents indicate preference for traditional, in-person learning.

According to the results of the questionnaire, the most preferred learning and teaching mode of Film and Television Studies students at the University of Kelaniya, is blended learning.

4. Conclusions

The shift to online education has introduced significant financial challenges despite being cost-effective for many due to savings on commuting. The need for reliable internet access has increased costs, with students relying on family support, scholarships, or part-time jobs to cover these expenses. Blended learning, combining online theory sessions and in-person practicals, is preferred by Film and Television Studies students for its flexibility and efficiency, benefiting both students and teachers (Koumadoraki & Koumadoraki, 2023; Lakmal, Khashunika, & Yatigammana, 2021).

Suggestions:

- Increased Financial Aid: The university should offer more financial help specifically for internet costs to ensure all students can access online resources.
- Affordable Internet Plans: Working with internet providers to offer cheaper data packages for students can reduce financial stress.
- Blended Learning Programs: Creating strong blended learning programs can meet students' needs by combining online and traditional education.
- Support for Technology: Providing students with necessary digital devices or setting up a device lending library can help those who lack the required technology.

By addressing these areas, the University of Kelaniya can better support its Film and Television Studies students, helping them succeed in both online and blended learning environments.

5. Keywords

COVID-19, Education, Learning, Online Education Challenges

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The Influence of Mass Media on Voting Discussion: Analyzing Sri Lankan Voter Behavior

A.R. Azsam

Postgraduate Institute of Humanities and Social Sciences, University of Peradeniya. azsamar@gmail.com

1. Introduction

This study, explores how mass media shaped voter decisions during Sri Lanka's 2019 presidential election. The research focuses on media coverage of key events such as the Easter Sunday attacks, allegations of economic deals with U.S. corporations, and controversies around contraceptive pills and racial tensions. Through a mixed-methods approach combining qualitative and quantitative analysis, the study examines the extent to which media narratives influenced voting patterns and whether the media's portrayal aligned with voter perceptions. The study highlights significant demographic variations in media influence, with media authenticity and public trust being central to understanding voter behavior.

Mass media has long been recognized as a powerful tool in shaping political behavior, particularly during elections. In democratic societies, media outlets serve as platforms for public debate, information dissemination, and opinion formation. In Sri Lanka, the 2019 presidential election occurred amidst significant political and social upheaval, with the media playing a central role in framing public discussions. This study investigates how media coverage of key events, such as the Easter Sunday attacks and national controversies, influenced voter perceptions and decisions during the election.

The primary aim of this research is to assess the role of mass media in shaping voter behavior, examining how media narratives influence public opinions on security, sovereignty, and social policies. This research focuses on whether the media's portrayal of key issues affected voting intentions, identifying which candidates benefitted from media coverage and how these portrayals shifted traditional voter loyalties. The study also evaluates public perceptions of the authenticity of media narratives, investigating how media credibility shaped voter trust.

2. Materials and Methods

This research employs a mixed-methods approach, combining quantitative surveys and qualitative interviews to assess the influence of mass media on voter behavior. A survey was conducted with a sample of 500 voters from diverse demographic backgrounds, including urban and rural regions. The survey focused on the impact of specific media coverage on voting intentions, while qualitative interviews provided deeper insights into the voters' experiences and perceptions of media narratives.

A content analysis of media outlets during the election period, including state-owned, independent, and social media, was conducted to examine how key events were framed and disseminated. The study also analyzed voter responses to media portrayals of national security, economic policies, and social issues.

3. Results and Discussion

Media Coverage of Key Events and Its Influence on Voting Behavior

Easter Sunday Attacks: The media's extensive coverage of the Easter Sunday attacks had a significant impact on voter behavior. Approximately 65% of survey respondents indicated that media coverage of the government's handling of the attacks influenced their voting decisions.

Many voters expressed concerns about national security and leaned toward candidates, such as Gotabaya Rajapaksa, who promised stronger security measures. Qualitative interviews highlighted emotional reactions to media portrayals of the attacks, with many voters feeling a heightened sense of insecurity and demanding a change in leadership.

Deals with U.S. Corporations: The media's portrayal of alleged economic deals between the Sri Lankan government and U.S. corporations raised concerns about the country's sovereignty and economic independence. About 40% of respondents cited these deals as a key factor in their voting decisions. Independent media outlets emphasized the potential risks of foreign influence, while state-owned media downplayed the significance of these deals. Voters from rural areas, in particular, were more likely to be influenced by narratives around economic sovereignty.

Contraceptive Pill Controversy: Controversies surrounding contraceptive pills, tied to religious and racial tensions, received significant attention on social media. Approximately 25% of respondents indicated that the media's portrayal of this issue influenced their voting decisions. This issue highlighted the intersection of religion, ethnicity, and public policy, and was amplified by viral social media posts that claimed certain communities were being targeted.

Racial Tensions and Media Influence

Racially charged comments, particularly on social media, played a significant role in shaping voter behavior. Over 30% of respondents acknowledged that media coverage of racial tensions influenced their voting decisions. Social media, in particular, became a platform for spreading divisive narratives, which resonated strongly with younger, urban voters. The research revealed a generational divide, with younger voters being more susceptible to emotional and racially divisive content.

Perception of Media Authenticity

The authenticity of media coverage was a critical factor in voter behavior. Around 55% of respondents expressed skepticism regarding the objectivity of media narratives, particularly those from state-owned outlets. Independent media outlets were viewed as more credible by 40% of respondents, though their reliability varied depending on the issue. The research found that voters tended to cross-reference multiple media sources to verify information, reflecting a general distrust in singular narratives.

Shifts in Voting Patterns

The study found clear correlations between media exposure and changes in voter behavior. Urban youth, primarily exposed to social media, were most influenced by issues related to racial tensions and national security, resulting in a 20% shift in their voting preferences. Rural voters, who consumed more traditional media, were influenced by concerns about security and economic independence, with a 10% shift in their voting intentions. The middle class, exposed to a mix of media, displayed a more nuanced response, considering both economic policies and security concerns.

Table 1: Voter Shifts Based on Media Exposure

Voter Group	Main Media Source	Change in Voting Intention (%)	Key Issues Influencing Shift
Urban Youth	Social media	20%	Racial Tensions, Security
Rural Elderly	TV and Radio	10%	Security, U.S. Corporate Deals
Middle Class	Mixed	15%	Economic Independence, Security

The survey revealed that 65% of voters were strongly influenced by media coverage of the Easter Sunday attacks, with 30% influenced by U.S. corporate deals and 25% by the contraceptive pill controversy.

4. Conclusion

This study highlights the powerful role of mass media in shaping voter behavior during the 2019 Sri Lankan presidential election. The findings suggest that media coverage of key issues, particularly national security and racial tensions, significantly influenced voter decisions. The media's portrayal of events such as the Easter Sunday attacks and racially charged comments played a pivotal role in shaping perceptions, with emotional and security-related narratives resonating strongly with voters.

However, the study also underscores the importance of media authenticity. Voter skepticism about the credibility of media sources suggests that a more balanced and objective media environment is necessary for fostering informed electoral decisions. The findings call for a more responsible approach to media reporting, particularly during election periods, to ensure that media narratives do not unduly polarize public opinion or distort the democratic process.

Future elections should see an emphasis on improving media literacy among voters, encouraging them to critically assess media content, and promoting fair and balanced reporting. The research contributes to a deeper understanding of the relationship between mass media and voter behavior, offering valuable insights for policymakers, media professionals, and election organizers in Sri Lanka.

5. Keywords

Mass Media, Voting Behavior, 2019 Presidential Election, Media Influence, Political Perception, Sri Lanka

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The Influence of Academic Discipline on News Consumption Patterns: A Study among Undergraduates at the University of Ruhuna, Faculty of Humanities and Social Sciences

H.M.T.T. Dhananjanee

University of Ruhuna. thisarithamoda2000@gmail.com

1. Introduction

In the arena of media consumption, understanding the factors that influence individuals' news consumption patterns is vital. Scholars have consistently shown that the norm for news consumption is reliance on multiple media formats, rather than a single medium or source, and this is especially the case in the news media landscape of today (Su et al., 2015). The digital age has transformed the way people access and engage with news content. As individuals who are following higher education, their exposure to various academic disciplines may shape their perspectives, preferences, and habits regarding news consumption. This research explores how the academic disciplines offered at the University of Ruhuna influence the news consumption patterns of undergraduates, specifically within the Faculty of Humanities and Social Sciences. The central question guiding this research was whether academic discipline has a noticeable impact on undergraduate news consumption patterns. By examining this relationship, the study aims to uncover the existing yet hidden connections between academic activities and the way students stay informed about current events. The primary objective is to analyze and understand whether there is a significant influence of academic discipline on the news consumption patterns of undergraduates. The study explores whether students from different departments exhibit distinct preferences in terms of news sources, languages, and content types, if there is an influence involved.

2. Materials and Methods

This research employs a mixed-methods approach, combining both quantitative and qualitative methods to measure the number of students following each habit and to analyze the instances where news is being related for the lessons. By using convenience sampling, data were taken from 40 respondents representing various academic departments and among these participants, fourteen are specializing in English and Linguistics, eight in Social Statistics, six in each Geography and Sociology, four in Economics, three in History while only one participant is specializing in Archaeology. The data were gathered through a google form in which the questions were approved by my supervisor before sharing it among the participants. Data were analyzed with the help of the graphical representations according to the Google Excel sheet, identifying patterns and relationships between academic discipline and news consumption. The data collection process involves two main phases, using a survey, qualitative data were gathered through one open-ended question to explore and test whether the students can remember of any occasion where the lecturers have ever referred to a current or past news affair when teaching a lesson. Those were analyzed thematically, highlighting each scenario related to their academic discipline. Then, quantitative data were collected through the same survey that includes 13 closed-ended questions to measure specific aspects of news consumption patterns. Among that, multiple-choice questions were used to gather quantitative data, providing measurable insights into participants' news consumption patterns.

3. Results and Discussion

According to the survey which was conducted among the university undergraduates, it reveals a variation of patterns in news consumption and its relevance to their academic studies. These are the key results of the study and the analysis based on that.

3.1. News Consumption Habits

In this research, participants were supposed to be tested according to their way of gathering news using different media. Here, almost all respondents (95%) consume news, with the majority favoring online platforms such as social media (72.5%) and news websites (37.5%). Television remains a popular source, with 62.5% watching news on TV. The preference for physical newspapers and radio is comparatively lower at 35% and 10%, respectively. Students' engagement with the radio news is low because of the limited access and they prefer visuals over listening. Furthermore, students prefer watching news over reading news, indicating their learning style as visual learners.

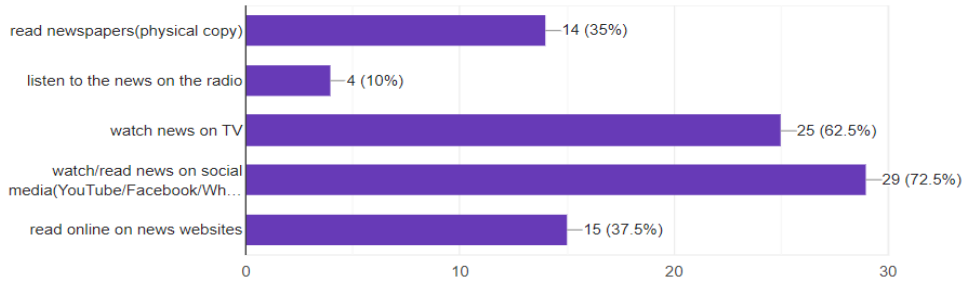


Figure 1: Ways of news consumption using different media ()

3.2. Types of News Content

According to the below bar graph, it reveals distinct preferences among respondents regarding their choices in news content categories. The most prominent category, with 60% exhibits a willingness towards news related to entertainment, emphasizing an interest in cultural and amusing aspects of current affairs. For Cinema/Theatre and Crimes, participants have showed equal interest of 47.5% as well as 25% for Sports and Science. Notably, a considerable 37.5% of participants express a fondness for political news, indicative of a substantial interest in staying informed about political developments. Moreover, the category of literature captures the attention of 42.5% of respondents, highlighting a significant interest in literary and artistic dimensions of news coverage.

When analyzing deeper, it is revealed that the students from the English department show their preferences towards Literature, Entertainment, Cinema/Theatre and Crimes. History and Geography students showcase their preference for Weather. Students who are specializing in Sociology and Economics have voted for Crimes and Politics. Those who are majoring in Social Statistics, have selected Sports and Gossips as their interests, which seemingly lack an apparent thematic alignment with their chosen academic discipline. The participant who is from the department of Archaeology has voted for Fiction, Crimes and Cinema/Theatre which also depicts a hint of relevance to historic and archaeological extracts in those categories. This has happened because the students are attracted to the type of news which relates to their study focus intentionally or unintentionally, perhaps due to the familiarity and interest.

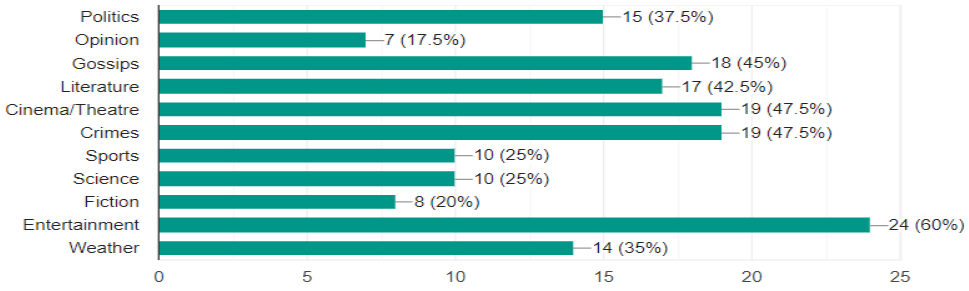


Figure 2: Genres of news content

Moreover, a remarkable focus emerges concerning the disparity between the popularity of local and foreign news. An 85% of respondents marked a preference for a combination of both local and foreign news, highlighting their enthusiasm towards the issues and events worldwide and the importance of knowing both types of news to their academic focus, while the remaining 15% shows their choice to stick to the news on the local and cultural context. In contrast, the appeal of foreign news alone appears relatively passive, emphasizing a prevailing weight on local narratives among the surveyed participants.

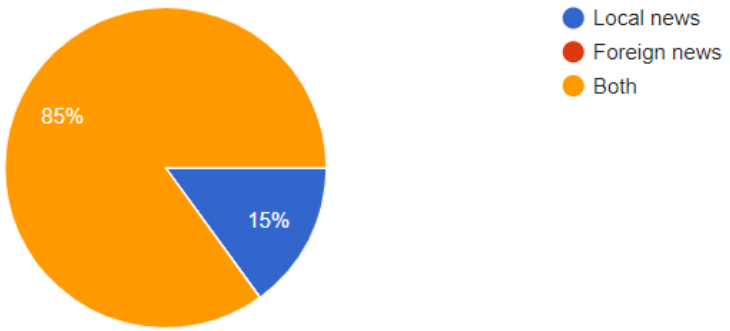


Figure 3: News content based on geographical area

3.3. Incorporation of News in Lectures

A considerable number of respondents, specifically 30 out of 40, have reported that their lecturers referred to current or past news affairs while teaching. The occasions mentioned topics such as journalism, economic situations, disaster management, and social issues like violence against women. This practice suggests that the lecturers often incorporate real-world examples into their lessons, linking theoretical concepts with practical scenarios. The open-ended question that was asked from the participants was, "Have your lecturers ever referred to a current or past news affair when teaching a lesson? If yes, can you share the occasion if you remember of any?". For example, these are some of the responses provided by the participants. *"Yes, our lecturer taught about writing news articles and feature article where he shared links of online news articles and feature articles that were published."* (Participant No:29, English a Linguistics), *"Yes. in the lecture talking about current economic situation."* (Participant No:12, Economics), *"Yes. In the subject of disaster management, the lecturer always mentions past disasters and always tells us to search about it."* (Participant No:34, Geography). These responses highlight the diverse range of relevance of news to the academics.

3.4. Attraction to News which Related to Subject Specialization of the Participant

The majority of respondents (70%) reported that their eyes sometimes catch news related to their subject area. This suggests that students are naturally drawn to news content that aligns with their academic interests depending on the content, further emphasizing the integration of current affairs with their studies. 27.5% respondents strongly agree with the question answering affirmatively without hesitance. Only 2.5% have reported passively saying 'No' to the question.

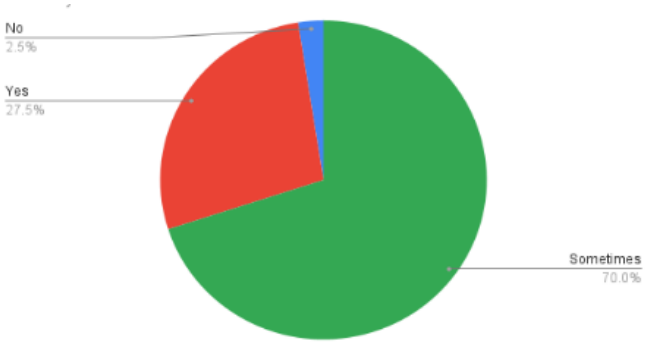


Figure 4: Attraction to news, related to subject specialization of the participant

3.5. Changes in News Consumption Patterns after University Entry

An amount of 82.5% of respondents noted a change in their news consumption patterns after entering the university. This shift could be attributed to the academic environment, where students may find increased relevance in staying updated with current affairs to complement their coursework. The reasons behind this transformation could be the change of the attitudes of the undergraduates and the prepared mindset within an academic environment. Majority has identified that being updated about news is important as an undergraduate academically and personally.

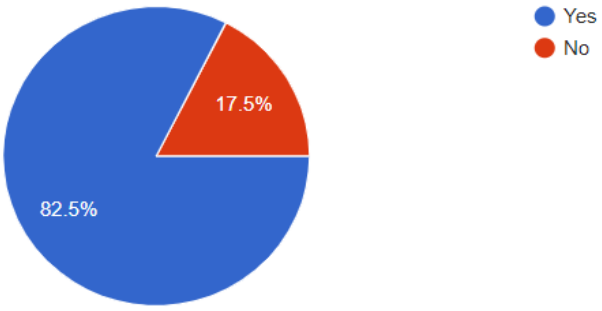


Figure 5: Changes in news consumption patterns after university entry

4. Conclusion

This research has revealed understandings of the relationship between academic discipline and news consumption patterns among undergraduates at the University of Ruhuna, within the Faculty of Humanities and Social Sciences. The findings underline the nuanced ways in which academic exposure shapes preferences, habits, and perceptions regarding news content. The detected shift in news consumption patterns after entering the university suggests a dynamic interplay between academic context and media engagement. This study contributes to the broader understanding of the harmonious connection between education and media consumption behaviors, emphasizing the importance of considering academic discipline in shaping individuals' news consumption.

5. Acknowledgment

I sincerely dedicate my heartiest gratitude to everyone who supported me in making this project a success.

1. Keywords

Academic discipline, News, News consumption, Undergraduates

2. References

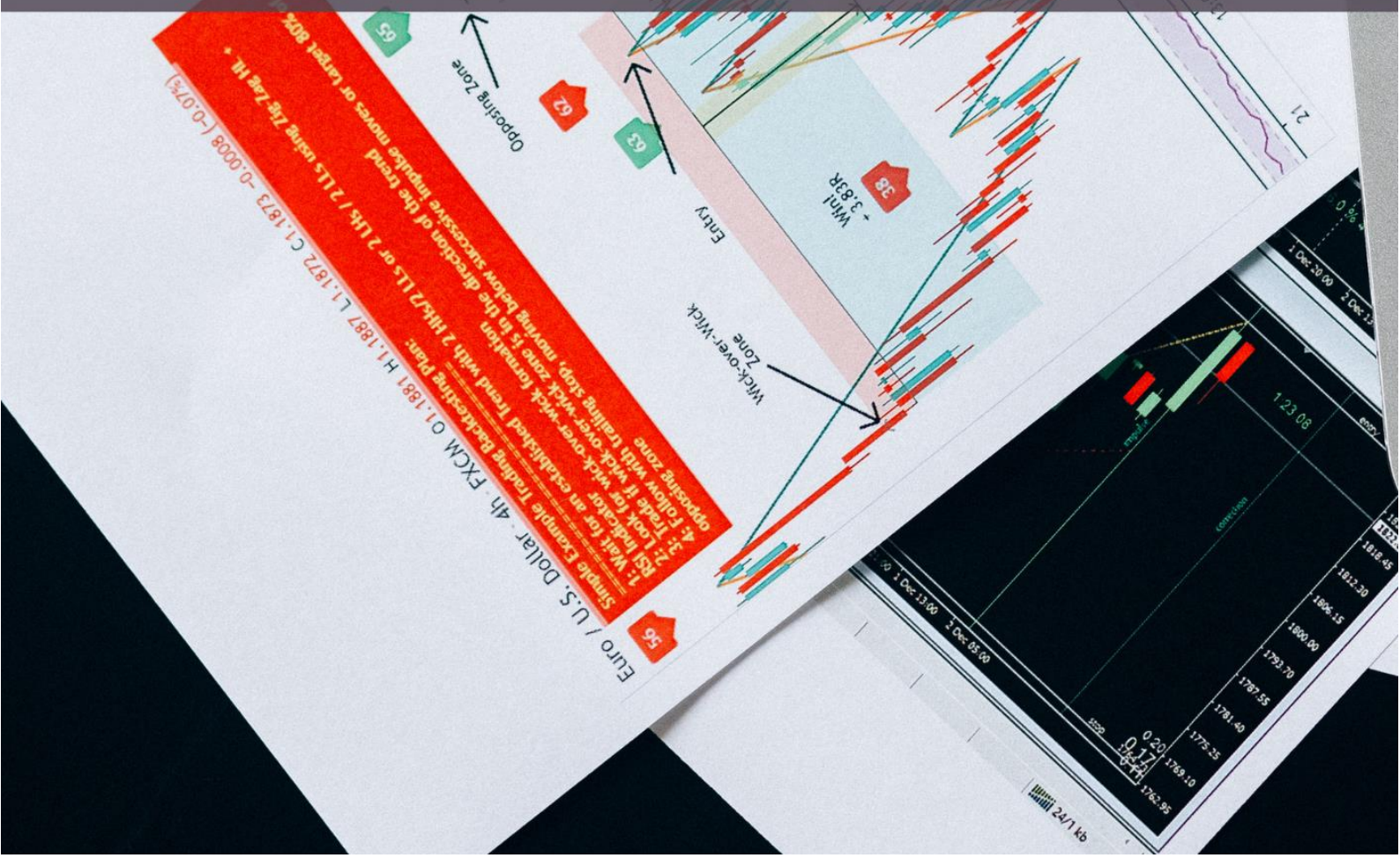
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Track 3
Economics, Entrepreneurship, and Management

Building Sustainable Economies and Inclusive Governance



Addressing Poverty through Financial Literacy: An Empirical Analysis of Financial Literacy of Low-Income People in the Rural Sector of Sri Lanka

N.P. Dammika Padmakanthi and Withanage Sandali Amalka Seneviratne

Department of Economics, University of Kelaniya, Kelaniya, Sri Lanka. dammikap@kln.ac.lk

1. Introduction

Poverty is a huge problem in Sri Lanka, even though there are many poverty alleviation policies and strategies implemented to reduce poverty. Recently, poverty has increased in Sri Lanka because of economic distress followed by the COVID-19 pandemic. According to the Poverty Head Count Index (PHCI), 14.3% of people in Sri Lanka are poor (Department of Census and Statistics (DCS), 2022). However, sectoral data from the PHCI indicates poverty is a massive problem in the rural sector since 15% of people are poor, and out of the total poor in Sri Lanka, 82.2% live in the rural sector (DCS, 2022). Accordingly, 80.9% of people are multidimensionally poor in the rural sector (DCS,2022), and 82% of vulnerable people live in rural areas (UNDP, 2023). Hence, special attention should be given to the rural sector in achieving the end poverty target introduced by the United Nations' Sustainable Development Goals. Poverty is multidimensional, and the rural sector often faces many obstacles that people push down to the poverty trap. Thus, paying attention to all possible solutions to eradicate poverty sustainably is essential. Many researchers have highlighted the importance of financial literacy in alleviating poverty (Wang et al. (2022); Koomson et al. (2023); Ling et al. (2024). Accordingly, Xu et al. (2023) have found that higher levels of financial literacy effectively combat poverty in the rural sector in China. However, the financial literacy of low-income people in rural areas in Sri Lanka is not widely analyzed. Hence, it is necessary to investigate whether low-income people have adequate financial literacy to make sound financial decisions and better manage their financial resources. Based on this research gap, this study investigates the financial literacy status and factors that affect the financial literacy of low-income people in the rural sector of Sri Lanka. This study provides valuable insight for policymakers to implement appropriate policies and strategies to overcome poverty in the rural sector by focusing on the financial literacy of the people.

2. Materials and Methods

2.1. Data Collection

Primary data, which was collected from 450 households in the rural sector of Badulla district, were used to assess the objective of this study. Beneficiaries of the Samurdhi program were selected as samples using multi-stage purposive and random sampling techniques. The sample size was determined according to Rosca (1975).

2.2. Computation of Financial Literacy Level

The financial literacy level consists of financial knowledge, financial attitudes, and financial behavior. Hence, the main components of financial literacy were computed using the following methodologies before calculating the financial literacy level.

2.2.1 Computation of Financial Knowledge

Both basic and advanced financial knowledge were assessed. The basic financial knowledge was measured using three questions that can measure the knowledge of basic financial concepts. It is assumed that respondents have good basic financial knowledge if they correctly answer all three questions; otherwise, they have poor financial knowledge.

Advanced financial knowledge was examined using five questions, and assigned "1" for the correct answer and "0" for a negative answer. A score of 3 is used as a benchmark value to identify the people with poor and high levels of advanced financial knowledge.

2.2.2. Computation of Financial Attitudes

The financial attitudes of the respondents were determined using nine structured questions, and answers were measured according to the five-point Likert Scale. Value for each response was assigned, such as 1- strongly disagree, 2-disagree, 3-neutral, 4-agree, and 5- strongly agree. The score ranged from 9 to 45, and 30 was used as a benchmark value to categorize respondents with good and poor financial attitudes.

2.2.3. Computation on Financial Behaviour

Financial behavior is analyzed using 12 questions, and 1 or 0 was assigned for positive or negative answers respectively. The score ranged from 0 to 12, and 7 is used as a benchmark value to determine the high and low levels of financial behavior.

2.2.4. Computation of Financial Literacy Level

Financial literacy level was calculated by summing the score of financial knowledge, financial attitudes, and financial behavior. A score of 40 is considered a benchmark value to determine the high and poor levels of financial literacy.

2.3. Determinants of Financial Literacy of the Low-Income People in the Rural Sector

The determinants of financial literacy were investigated by using the Multiple Regression model. Financial literacy level was taken as a dependent variable while age, gender, education, main income source, income diversification, use of a smartphone, distance to the bank, distance to the ATM, and use of bankcards were considered as independent variables.

3. Results and Discussion

3.1. Socio-Economic Information

Out of the total sample, 31% of respondents were female, and 69% were male. The majority of decision-makers have education up to an ordinary level or less, while very few have formal vocational training. Income diversity was very low, except some households had more than one income earners. All the respondents had bank accounts since they were compulsory for Samurdhi beneficiaries, but the majority used them to administrate Sumurdhi benefits only. The use of debit cards and ATMs is limited because of unavailability, lack of knowledge, and problems in trust.

3.2. Financial Knowledge

Advanced financial knowledge for all is zero since none of the respondents correctly answered any questions that measured advanced financial knowledge. The information on the respondents' basic financial knowledge is illustrated in Table 01.

Table 01: Basic Financial Knowledge of the Low-Income People

Level of Financial Knowledge	Percentage of Respondents
Zero basic financial knowledge	62
Poor basic financial knowledge	28
High level of basic financial knowledge	10

Source: Author calculated based on the primary data

Table 02: Financial Attitudes of the Low-Income People

Level of Financial Attitudes	Percentage of People
Low level	81
High level	19

Source: Authors calculated based on the primary data

The results indicate that low-income people in the rural sector do not have adequate financial knowledge to make sound financial decisions. Without having at least knowledge of basic financial concepts, those people cannot fruitfully manage their financial resources. Table 02 illustrates the information on financial attitudes of low-income people.

The majority of low-income people have poor financial attitudes. Especially they do not have positive attitudes toward controlling their expenditure or planning their financial transaction since they spend income mostly only on essential expenditures, which cannot be avoided or postponed.

3.3. Financial Behaviour

The details of the financial behavior of low-income people are illustrated in Table 03.

Table 03: Financial Behaviour of the Low-Income People

Level of Financial Behaviour	Percentage of People
Low level	82
High level	18

Source: Authors calculated based on the primary data

The results indicate that most low-income people have poor financial behavior, especially accompanied by poor financial knowledge and attitudes. Accordingly, limited income and essential expenditures that cannot be delayed or ignored prevent them from planning their financial decisions. However, it is essential to educate them to have good financial practices and wisely use their limited financial resources.

3.4. Financial Literacy

Financial literacy consists of financial knowledge, attitudes, and behavior. The details of the respondents' financial literacy status are illustrated in Table 04.

The majority of low-income people do not have the appropriate financial literacy level to take wise financial decisions. Hence, it is worth to educate them to improve their financial literacy. Such knowledge is a good motivation for low incomers to increase their income so as to achieve their financial targets and manage their financial assets to get rid of poverty.

Table 04: Financial Literacy Level of the Low-Income People

Financial literacy level	Percentage of People
Low level	92
High level	08

Source: Authors calculated based on the primary data

3.5. The Determinants of Financial Literacy of the Low-Income People in the Rural Sector

The determinants were examined using a multiple regression model, and the results are illustrated in Table 05.

Table 05: The Determinants of Financial Literacy

Determinants	Co-efficient	P-value
Age	0.034	0.10
Gender	-0.051	0.03
Education	0.520	0.01
Main income source	0.043	0.06
Income diversification	0.032	0.09
Use of smartphone	0.017	0.07
Distance to a Bank	0.061	0.08
Distance to an ATM	0.070	0.06
Use of debit card	0.034	0.08

Source: Author calculated based on the primary data

According to the regression analysis, socio-economic factors such as income, age, gender, education, income diversification, and availability of related infrastructure facilities such as banks, ATMs, use of debit cards, and smartphones are the key determinants of financial literacy.

4. Conclusion and Recommendations

Low-income people in the rural sector have poor financial literacy highlighting the importance of improving financial literacy so as to make appropriate financial decision-making to get rid of poverty.

Since education has a significant positive impact on financial literacy, it is essential to take necessary action to increase education since most children in low-income families face many barriers to continuing education. Developing infrastructure facilities by establishing financial institutions and ATMs in rural areas, is also essential. Accordingly, the provision of appropriate training and awareness programs is also worthwhile. Implementing relevant policies and strategies to boost income from regular income sources is also important since the financial literacy of low-income people is directly associated with regular income.

5. Keywords:

Financial literacy, Determinant of Financial Literacy, Rural Sector, Low-Income People

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Climate Change Effect on Farming Households' Food Security and their Resilience Strategies in Dry Zones of Sri Lanka: A Qualitative Exploration

HGKN Bandara, SAU Niranjala, HABW Hettiarachchi, KR Nilmini, AMP Adikari, MKN Pabasara, SDA Sumanapala, JMHM Upulwehera, RPIR Prasanna and SK Naradda Gamage

Department of Economics, Rajarata University of Sri Lanka, Mihintale, 50300, Sri Lanka.
nilakshimanamendra@gmail.com

1. Introduction

Climate change substantially complicates global agriculture, influencing agricultural yields, food security, and millions of livelihoods worldwide. Climate change has an extreme effect on agriculture, considerably challenging global food security and affecting supply, stability, accessibility, and food quality (Pratap et al., 2024). A significant threat has been posed to agriculture in Sri Lanka's dry zone due to unexpected warming trends, increased rainfall unpredictably, and an increase in the frequency and intensity of extreme weather events such as floods, droughts, and winds, diminishing the climate suitability for farming (Ratnayake et al., 2023).

In the dry zone, the promised annual rainfall is short, and the sun shines brightly for most of the year. Hence, the climate directly relates to crop yield and food security. The reductions in agricultural production affect the worst food security status among marginalized and vulnerable communities in different regions of the world. Rainfall instability also influences crop growth periods and water conservation for this essential use, making the situation more challenging. In Sri Lanka, 40% of families work in agriculture, farming 4,399,404 acres. Drought and unpredictable rainfall during the Yala and Maha seasons could harm agriculture in the dry zone, which includes Northern, Eastern, and Northwestern provinces, as well as Hambantota and Anuradhapura districts (Department of Census and Statistics, 2017). Of the 2.3 million agricultural operators, 22% and 14% grow paddy during the Maha and Yala seasons, respectively. The Food and Agriculture Organization reports that severe droughts followed by excessive rainfall have impacted cropping areas in Sri Lanka, endangering the food security of over 900,000 people (FAO, 2017). Thus, climate extremes significantly threaten Sri Lanka's food production and rural lives because only 34% of the planted area is irrigated.

Thus, these climate changes worsen food scarcity and present a major concern from the farming family's lives. Also, they are vulnerable to frequent changes in climate and long periods of dry weather that lead to low crop yields, food supply issues that endanger the household food security (FAO, 2015). Food security is the social and economic access to food for adequate, safe and nutritious food. The 1996 World Food Summit defines food security as ensuring that people always have physical and economic access to adequate, safe and nutritious food that meets their dietary needs and preferences for an active, healthy life. Food security has four dimensions: availability, access, utilization and stability (Mah et al., 2014). Thus, various coping strategies could be implemented including early warning systems, planting dates shifting, irrigation with the new rain-fed network and appropriate crop variations to mitigate impacts of climate change on food security. This necessitates using best practices in adapting to climatic changes and applying sustainable agricultural methods. Therefore, the primary purpose of this study is to identify how climate changes influence food security status of farming households and their resilience strategies for sustainable agriculture employed to mitigate climate change effects on food availability and access in the dry zone of Sri Lanka with a specific focus on the farming community.

2. Materials and Methods

This research adopted a qualitative approach due to the nature of the problem. Data were collected through in-depth interviews with 13 farming households in the Mahaweli H zone with a well-developed and pre-tested interview guide. Participants for the interviews were selected via a purposive sampling technique. The responses under the criteria of households in the dry zone of Sri Lanka that engage primarily in farming activities and have more than two years of farming experience have been included in the sample. The farmers with minimum experience below two years and households that do not directly engage in farming activities were excluded from the sample. All interviews were recorded and transcribed. Descriptive and thematic interpretive analytical techniques were employed to analyze the collected data.

3. Results and Discussion

The study investigated the fundamental characteristics of household heads in 13 case studies to identify potential implications for food security and sustainable agricultural methods. Respondents are predominantly male (92%), with the majority being married. Farmers' ages ranged from 35 to 82 years, some older. Except for three, the vast majority of respondents have a secondary education. Household sizes ranged from two to six persons, with monthly revenues ranging from Rs. 40,000 to Rs. 150,000. Primary education is required. Many farmers have over 20 years of experience, some exceeding 50 years.

Table 1. Climate Change Impacts on Household Food Security and Resilience Strategies of Farmers Confronting Climate Change

Thematic Areas	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
Impact of Climate Change on Household Farming & Food Security													
1. Food Production and Yield	*	*	*	*	*	*	*	*	*	*	*	*	*
2. Income and Economic Stability	*	*	*	*	*	*		*	*	*	*	*	*
3. Water Resources and Management	*	*		*	*	*		*			*		*
4. Food Availability and Access	*	*	*	*	*	*	*	*	*	*	*	*	*
5. Nutrition Quality and Dietary Diversity		*	*	*			*	*	*	*			*
6. Other		*	*	*				*					*
Resilience Strategies of Farmers													
1. Rainwater Harvesting			*		*				*	*			*
2. Practicing No-Tillage Farming		*											
3. Stay Updated with Weather Forecasts	*	*	*	*	*	*	*	*	*	*	*	*	*
4. Adopting Organic Farming	*			*			*	*	*	*	*	*	
5. Improving Soil Health											*		
6. Crop Rotation	*	*	*	*	*	*	*	*	*	*	*	*	*

Source: Survey data - 2023/2024

According to Table 1, this study examined 13 cases to identify the impact of climate change on farming and food security. Key themes included food production and yield, income and economic stability, water resources and management, food availability and access, nutrition quality and dietary diversity, and coping strategies. The findings reveal that climate change significantly influences farming land and household food security. Climate change has caused significant variations in crop yields, with many regions experiencing declines in agricultural productivity, reducing staple food availability, resulting in higher prices and limited access to nutritious food. Water security is a critical issue for farming communities, affecting irrigation practices and the sustainability of agricultural activities. This affects crop production and household water availability, adding to the food security challenge.

Farmers have adapted their practices to address climate change and promote sustainable food production, including sustainable agriculture. The findings suggest a multifaceted approach to understanding farmers' resilience strategies in dry zones. The adaptive measures fall into three categories: agricultural practices, resource management, and socio-economic strategies. Climate change mitigation relies heavily on agricultural practices, including crop diversification and drought-resistant varieties. Farmers can reduce the risk of crop failure by cultivating a diverse range of crops. Drought-resistant crops can withstand more extended periods of water scarcity, leading to a more consistent yield. Mulching, contour plowing, and cover crops are crucial for preserving soil health and fertility, ensuring long-term agricultural resilience. Effective resource management, particularly water management, is essential for sustaining agricultural activities in dry zones. Efficient water use practices such as rainwater harvesting, drip irrigation, and the construction of small-scale water storage facilities are critical in addressing water. Households use various coping strategies and sustainable agricultural practices, including switching to drought-resistant crop varieties and implementing water conservation techniques, to mitigate the adverse effects of climate change.

4. Conclusion

This paper examines the influence of climate change on farming household food security and the sustainable agricultural methods of farmers employ to enhance their resilience against climate change effects in the dry zone of Sri Lanka. The study was conducted in the Mahaweli H zone and adopted a qualitative, case study-based methodology through in-depth interviews with 13 households. The results reveal that climate change significantly impacts food security in the farming households in the research area.

Adaptation measures are necessary to address this issue of climate change effect on food security of farming households. Participants reported issues with food availability owing to irregular weather, lengthy droughts, and decreased agricultural productivity. These climate-related difficulties have restricted family food supplies, making it challenging for families to get nutritious food regularly. In response to these challenges, households have adopted various sustainable agricultural practices to improve their resilience against the adverse impact of climate change. There is an urgent need for policy interventions that promote sustainable agricultural practices tailored to the specific needs of dry zones to mitigate these impacts effectively. Considering the findings to ensure food supply, policymakers should prioritize adaptation efforts such as upgrading water management systems, increasing access to climate-resilient seeds, and supporting community-based projects that promote local food production.

This study further recommends encouraging rural farmers to embrace sustainable agricultural practices and climate change adaptation measures. Sustainable agricultural practices, including crop diversification, soil conservation, drought-resistant varieties, and efficient resource management techniques such as rainwater harvesting and drip irrigation, have improved productivity and stability. Implementing social-economic methods, such as loan access and community knowledge exchange, enhances the adaptability and sustainability of farming systems.

Governments and stakeholders should invest in agricultural extension services to share information and best practices, especially for water management and sustainable farming approaches. Policies that provide farmers with inexpensive credit and financial resources can help them adopt and implement resilience strategies. Collaborating among farmers, research institutions, and local people can improve information sharing and innovation, strengthening the resilience of farming systems in dry zones. Government and stakeholders should invest in agricultural extension services to share knowledge and best practices, especially for water management and sustainable farming techniques.

5. Acknowledgement

This article is funded by a research project titled: Impact of Farm-Level Climate Change Adaptation Strategies on Household Food Security in Dry Zone of Sri Lanka, Granted No. (RJT/R&PC/2023/R/FOSH/02) from the Department of Economics, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka.

6. Keywords

Climate Change, Farming Households, Food Security, Sustainability

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Drivers For Export Engagement of Small And Medium-Sized Enterprises (SMEs) In Developing Countries: With Special Reference Agro-based SMEs in Sri Lanka.

H.A.B.W. Hettiarachchi[1], K.S. Denipitiya[1] and L.P.T.S. Wickramanayaka[2]

[1] *Department of Economics, Rajarata University of Sri Lanka, Mihintale, Sri Lanka.* hettiarachchi@ssh.rjt.ac.lk

[2] *Department of Information Systems, Rajarata University of Sri Lanka, Mihintale, Sri Lanka.*

1. Introduction

There are various sizes of enterprises within a country, including small, medium, and large enterprises. The small and medium enterprises (SMEs) sector is an influential driver in the growth of any economy in the world. It contributes to the countries' Gross Domestic Product (GDP) and domestic employability. The World Bank released a report in 2016 with the theme of "Levelling the Trading Field for SMEs," highlighting the significance of SMEs' involvement in global trade (World Trade Organization, 2016). There are some definitions for SMEs based on sector-specific and country-specific characteristics. According to Prasanna et al. (2019), the primary factors include the number of workers, yearly turnover, capital assets, input consumption, production capacity, degree of technology adoption, and management techniques. According to the policy framework in Sri Lanka, SMEs are classified according to annual turnover and employee count.

SMEs are defined in Sri Lanka as having fewer than 300 workers and an annual revenue of no more than 750 million(Ministry of Industry and Commerce, n. d.). Exporting is the most adopted mechanism for the entry and expansion mode of SMEs in the international market(Madushanka and Sachitra, 2021). In the business strategy literature, the Resource-Based View (RBV) is one of the leading theoretical viewpoints (Stoian et al., 2011). The RBV theory for internationalization explains that a company's decision to engage with exports depends on the quantity and quality of the firm's internal resources (Madushanka & Sachitra, 2021). The RBV is the first attempt in the literature to discuss why companies attempt to increase their operations in international markets. In the Sri Lankan context, the Department of Census and Statistics (2014) reported that around 103,7267 micro, small, and medium firms operate in Sri Lanka. Around 75% of SMEs are in the rural sector, thus showing the socio-economic impact of the sectors in rural areas (Export Development Board, 2021). However the contribution to the national export from the SME sector is less. It contributes only 5% of total export earnings. Some SMEs disappear quickly, and some businesses survive and engage in export activities. This study investigates the drivers for export engagement of Small and Medium Enterprises(SMEs) in Sri Lanka.

2. Materials and Methods

The study used the most commonly acceptable criteria for defining SMEs in Sri Lanka as businesses with less than 300 employees and an annual turnover of less than Rs. 750 million. (Ministry of Industry and Commerce, n. d.). Due to the nature of the topic under investigation, our methodology is qualitative and centred on in-depth interviews for Interpretive Thematic Analysis. According to Mahajan (2018), qualitative characterization of research allows a broad field of study to be narrowed into a single, manageable topic, offering a comprehensive understanding of a specific situation or issue. We have hidden the company names, which reveal the respondent's identity. We conducted the study in rural settings in three districts in the country. The districts were chosen based on the contribution criteria to the exports from agro-based industries in Sri Lanka. The export earnings from coconut-based productions are 817 US$ Mn, which is 6.2% of total export earnings (Coconut Development Authority, 2022), and the export share of coconut-based products is 3.1% (Central Bank Report, 2021). Puttlam, Kurunegala, and Gampaha are the central districts in the study. These three districts are

considered the coconut triangle and produce 3391.36 million nuts annually. The study was performed in the Kurunegala, Puttlam, and Gampaha districts based on their importance. The study sample consists of owner-managers of SMEs. Fifteen owner-managers were selected as the judgemental sample covering coconut-based industries. Coconut product is a vast area. At least one respondent was selected purposely from each sub-sector, such as coconut kernel product, coconut fibre product, coconut peat product, and coconut water product. They were interviewed according to the pre-arranged time of the SME owners currently engaged in export activities. The interview guide, which was prepared using standard guidelines (Mack, 2005), consists of open-ended questions in the Sinhala language. We documented the interviews using tape recordings and writing field notes. Immediately after the interviews, we expanded those notes with the recordings. The personal and demographic information of the respondents are in the first part of the interview. The second part consisted of questions about the drives for export engaging in export activities. We tape-recorded all interviews with the participants' permission. Maintaining data confidentiality is essential in this kind of research due to the severe competition between the companies for raw materials, positioning, and market information. We explained our primary objective before starting the interviews.

The study used an interpretive thematic analytical technique and, using open-ended interviews, attempted to identify common ideas or themes that emerged based on the phenomenon under investigation.

3. Results and Discussion

The drivers for SMEs' engagement in export activities can be broadly defined as the factors that influence a firm's decision to enter the international market. The study investigated 15 cases and derived 06 thematic areas under the drivers for SME export engagement. They are financial capability, human capital, management capability, marketing capability, institutional support and network (Table 1). The respondent quotes support each theme to provide a broader invest

3.1. Thematic Areas

Table 1: Derived thematic areas on drivers for export engagement

Driver	C 1	C 2	C 3	C 4	C 5	C 6	C 7	C 8	C 9	C 10	C 11	C 12	C 13	C 14	C 15
Financial Capability															
Human capital															
Managerial capability															
Marketing capability															
Institutional support															
Network relationships															

Source: Author Constructed

This criterion of financial capability includes the company's ability to obtain sufficient credit from commercial banks and to finance its activities with the amount of retained capital, the liquidity of the company, and the ability to purchase capital requirements (Madushanka & Sachitra, 2021). "*There is no problem regarding the financial situation of our company. Banks always provide loans to us……*" (C7). *"As a company, we rarely take large loans…. (C11). We used our own funds to build it…." (*C15).

Human capital is defined as the knowledge, skills, competencies, and attitudes of the individuals in an organisation (Ployhart, Weekley, & Baughman, 2006). Scholars have pointed out that collective knowledge, abilities, competencies, experiences, and specific skills lay the foundation for firm-level capabilities to achieve competitive advantage in the international market (Onkelinx et al., 2016). Respondents C1, C3, C4, C10, C11, and C12 provide evidence of Human capital as a driver for SME export engagements. "*I used my skill to develop this*

business…." (C1, C10). "As a graduate, I have a lot of energy to export a product" (C3, C12). "*Firstly, I got the experiences from my father about the local market operations. Then, I wanted to touch the foreign market gradually. After analysing the market situation, I started to export virgin coconut oil to the international market. "* (C3). "*We know how to manage our business in the risky environment with our experience*"(C1).

"Dynamic managerial capabilities are the capabilities with which managers build, integrate, and reconfigure organisational resources and competencies" (Adner & Helfat, 2003, p.1012). C3, C6, C7, C11, C12, C13, C14 and C15 reported that the managerial capabilities of the managers have positively influenced their international performances. Finding a new market, being highly involved in the international market, finding a stable market, taking first mover advantage, following peer reactions, and having a manager's international experiences are included in the category of dynamic management capability. "*My father started this business.... I also thought that traditional businesses should be diversified.....*" (C3)."*We are among the top five export companies. We have the ability to face international competition well....*" (C7)(C11). "*Quality is our main concern when competing with other competitors*." (C11)(C13). "*We don't embrace everything. We only do what we do best. Because I am an engineer, I have been able to design more than 300 machines needed for this industry*" (C12). The above discussion provides evidence of firms' decision-making logic and entrepreneurial resourcing behaviours combined to create value for the business.

A company's ability to use its resources to carry out marketing tasks in ways that produce the intended marketing results is considered its marketing capabilities (Morgan,2018). This study highlights the key components involved. "*Customer demand is the main factor that has brought us this far. I am correct in saying that international consumer choice has taken us international*"(C1)(C4). The second important point they highlight is the assessment of market trends, opportunities, and threats. "*I have done a market analysis first to start my new business because I wanted a sustainable business*" (C3). Being competitive is essential for business success. Organisations must make higher profits and attract more customers or gain brand loyalty among existing customers. Cost leadership, differentiation, and focus are the three main strategies for competitiveness (Porter, 2008). "*Looking at the price factor, if the quality is there, we can gain an advantage in marketing...*(C12).

C1, C3, C8, and C11 have highlighted the importance of institutional support. The Export Development Board (EDB) is the key institute that promotes coconut-based exports in Sri Lanka. "*The Export Development Board (EDB) has helped us promote our exports. They give us good training about export import procedures*". C1, C3, C8, and C11 also mentioned the special training given by the EDB. In addition to training programmes, the "*Export Development Board helps to find foreign buyers*" (C5) (C6). "*In the past, the government sent us to exhibitions in countries around the world through EDB. It was a big support to take this business to the international level*" (C4). *At that time, the international trade fairs provided by the government were significant for us. That trust is built when people meet and talk there*" (C13). In addition to EDB, some SME owners highlighted the service given by the Coconut Development Authority (CDA). "*CDA website helps us plan future production because we want to have total coconut production and domestic consumption as we use only one-third of the total coconut production for the export industries. So CDA websites are always useful for us*" (C11).

SMEs obtain the necessary benefits from external partners and see them as complementary assets(Singh,2022). In this study, the respondents identified three major networks: business associations (Business networks), social networks, and subcontractors (intermediaries). Business networks help to share market information, exchange market knowledge, and market their products. "*Our product associations make a big contribution in solving common problems"* (C2). "*I have a good relationship with other companies who produce the same*

product. We meet together and discuss the contemporary issues" (C3). Meanwhile intermediary firms provide a platform for facilitating international trade among other countries. With quality products, the raw material supplies in the middle part of the supply chain have the probability of becoming exporters with the help of direct exporters(C11). Business people also often use social networks to enter the foreign market, as business relationships usually start with social relationships "*My friend started exporting because his friend found an order from a foreign country. Therefore, various network connections in foreign countries are crucial in finding export markets*"(C2).

4. Conclusion

This study sought to investigate the drivers to the export engagement of agro-based SMEs in Sri Lanka Using a qualitative study approach, The findings enable us to draw the conclusion that the main internal-level domestic drivers of SME internationalization are financial capability, human capital, managerial capability, and marketing capability. Domestically, institutional support and the network connections between members and institutions also have an impact on external motivations for the export engagement of SMEs in Sri Lanka.

There are a few issues with this research report that can be resolved in later studies. The first disadvantage is that it is challenging to generalize the results due to the non-probability sampling technique used. SME owners were the primary target participants, and the study's scope was restricted to agro-based SMEs.

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Factors Influencing Farmers' Perception Towards Microinsurance in Sri Lanka: A Study Based on North Western Province

R.S.L. Jayarathne

Wayamba University of Sri Lanka. saumyaj@wyb.ac.lk

1. Introduction

Microinsurance, a subset of microfinance, seeks to support low-income households by offering insurance protection tailored to their needs (Al-Imran et al; 2022). They shield low-income earners from various risks, including harvest failure, property damage, third-party liabilities, health risks, and life-cycle risks. Microinsurance programs are implemented in many countries globally, particularly developing countries. Previous researchers highlighted the importance of developing microinsurance in Sri Lanka, especially among farmers since they have no positive perception towards microinsurance (Heenkenda, 2013; Nilwala & Jayarathne, 2018). Even though identifying factors influencing farmers' perception towards microinsurance is timely important, there are only a few recent researches that have been conducted in Sri Lanka. Therefore, to bridge the existing gap, the researcher aims to identify and analyze the factors influencing farmers' perception of microinsurance. With the support of reviewed literature accessibility (Maireva, 2023), awareness (Matul et al, 2013; De Silva, 2008), ability to pay (Matul et al; 2013), and behavior of agents (Matul et al; 2013) were identified as influencing factors for farmers' perception toward microinsurance. These factors were selected based on the unique challenges faced by Sri Lankan farmers and their potential impact on perception and uptake.

2. Materials and Methods

To accomplish the objectives of the present study, the conceptual framework developed as depicted in Figure 1, and all relationships complied with the theoretical and empirical literature review.

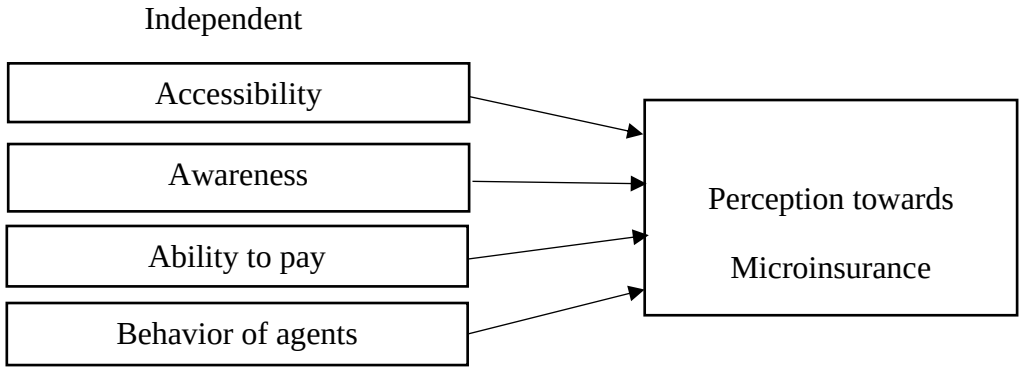


Figure 1: Conceptual Framework

Farmers' perception towards microinsurance was taken as the dependent variable and accessibility, awareness, ability to pay, and behavior of agents were taken as independent variables. Based on the reviewed literature hypotheses have been developed as below.

H_1: There is a significant impact of accessibility on perception towards microinsurance
H_2: There is a significant impact of awareness on perception towards microinsurance
H_3: There is a significant impact of ability to pay on perception towards microinsurance
H_4: There is a significant impact of behavior of agents on perception towards microinsurance

The deductive approach is used for this study. This is quantitative research and as per the reviewed literature, most researchers had used questionnaires as the method to gather primary

data for this kind of study. Therefore, the researcher collected primary data from an independent survey through a questionnaire which is constructed based on the empirical literature. The questionnaire contained 5-point Likert scale questions starting from 'strongly agree' to 'strongly disagree' to get the views of farmers regarding dependent and independent variables. According to the information provided by the Department of Census and Statistics in 2023, North Western province represents a significant percentage of farmers. Therefore, the population was the farmers of North Western province in Sri Lanka. Based on Green's theory (1991), 200 farmers were selected as the sample by the use of the non-probability sampling method's convenience sampling technique. The collected data was analyzed by using the SPSS 23rd version because it is more appropriate to analyze quantitative data. Normality test for the dependent variable, reliability test, validity test, and multicollinearity test were conducted by the researcher before testing the hypotheses. Descriptive statistics, correlation analysis, multiple regression analysis, and ANOVA were used to test the developed hypotheses.

3. Results and Discussion

The researcher used the skewness and kurtosis coefficient to examine the normality assumption and accordingly normally was there. Cronbach's alpha is frequently used for assessing the reliability of a construct and for the present study. All values were greater than 0.8, which is considered as good (George and Mallery, 2003). Kaiser-Meyer-Olkin (KMO) and Bartlett's Test were used to test the validity of the variables in the questionnaire. Accordingly, all KMO values are greater than 0.5, Bartlett's test of sphericity values (significant values) are less than 0.05 and the values of Average Variance Explained (AVE) are greater than 0.5. Therefore, all these values suggest no validity issues, in this questionnaire. Accordingly above results indicated that the selected sample was adequate for measuring the variables. Tolerance and Variable Inflation Factor (VIF) statistics were used to test the multicollinearity of independent variables. The independent variables have not been faced with multicollinearity because all VIF values were smaller than 2 which refers accessibility 1.93, awareness 1.85, ability to pay 1.92 and behavior of agents 1.97.

The extent and nature of the relationship between the dependent and independent variables were assessed using Pearson's correlation coefficient. The results were summarized and depicted in Table 1.

Table 1. Correlation Analysis

	Correlation Coefficient	**Sig. value**
Accessibility	0.665*	0.002
Awareness	0.752*	0.000
Ability to pay	0.530*	0.000
Behavior of agents	0.342*	0.001

*$P<0.05$

Source: Author constructed

Correlation shows the linear relationship between one independent variable and dependent variable, ignoring the influence of other considered variables. The relationships between accessibility, awareness, ability to pay, behavior of agents, and perception towards micro insurance are positive and significant since all sig. values are less than 0.05. The Pearson correlation coefficient between accessibility and perception towards micro insurance is 0.665 representing a moderate positive relationship. The coefficient value between awareness and perception towards micro insurance is 0.752 representing a strong positive relationship. The coefficient value between the ability to pay and perception towards micro insurance is 0.530 indicating a moderate positive relationship. The Pearson correlation coefficient between behavior of agents and perception towards micro insurance is 0.342 indicating a weak positive relationship.

To study the combined impact of numerous independent variables on one dependent variable multiple regression analysis is the best method. The results were summarized and showed in Table 2.

Table 2: Multiple Regression Analysis

	Unstandardized Coefficients		**Sig.**
	B	Std. Error	
Constant	.067	.104	.000
Accessibility	.306	.040	.000
Awareness	.318	.054	.000
Ability to pay	.206	.032	.000
Behaviour of agents	.105	.036	.000
Model Summary			
R Squared	.587		
Adjusted R Squared	.563		
ANOVA Table			
F Statistics	17.231		
Sig.	.000		

Source: Author constructed

Beta coefficient values for the accessibility, awareness, ability to pay, and behaviour of agents are .306, .318, .206, and .105 and this shows the positive impact on perception towards microinsurance which is statistically significant (sig< 0.05). The R squared value is 0.587 and the adjusted R squared value is 0.563. Therefore about 58.7% of the variation in the perception of microinsurance is described by the model. The remaining 41.3% of the variation occurred due to other unexplained variables. F statistic is 17.231 and the significance refers to 0.000 (<0.05). Consequently, the independent variables may predict changes in the dependent variable, and the regression model has been confirmed.

The regression model;

Perception towards microinsurance = 0.067 + .306 (Accessibility) + .318 (Awareness) + .206 (Ability to pay) + .105 (Behaviour of agents)

Based on the above analysis all hypotheses can be accepted.

4. Conclusion

The present study fruitfully achieved the stated objectives; the impact of accessibility, awareness, ability to pay, and behavior of agents on farmers' perceptions towards microinsurance in Sri Lanka. All hypotheses were confirmed, indicating that all variables exert a positive and significant impact on perceptions of microinsurance among farmers which is consistent with the literature (Maireva, 2023; Matul et al, 2013; De Silva, 2008). The model explained that these factors play a vital role in shaping farmers' attitudes toward adopting microinsurance. Therefore, the need for educating farmers regarding microinsurance, ensuring the easy availability of microinsurance even in rural areas, providing affordable and tailoring products to small-scale farmers, train agents to deal with farmers by building trust can be identified as key findings. Accordingly, to increase the adoption of microinsurance among farmers promoting awareness campaigns with the support of government and non-government organizations, enhancing accessibility to cater to rural and unserved areas via partnering with banks, offering customized insurance products, aligning premiums with seasonal income trends, boosting agent-farmer long term relationships through continuous trainings and get the

government support can be recommended. Future researchers can consider additional variables such as risk perception, climate change, etc. Further mediating variables, moderating variables, or controlling variables can be considered with the support of literature. The study limited to 200 famers in North Western province and future researchers can consider these limitations. In conclusion, enhancing farmers' perceptions and adoption of microinsurance needs a comprehensive strategy, encompassing awareness enhancement, accessibility improvement, product customization to address financial requirements, and the establishment of robust, trustworthy connections via agents.

5. Keywords

Awareness, Behavior of agents, Farmers' perception, Microinsurance

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Sustainability of Microcredit Groups: A Comprehensive Study of Financial and Social Dimensions

SAU Niranjala, AMP Adikari, HGKN Bandara, SD Amasha Sumanapala, KR Nilmini, MKN Pabasara, RPIR Prasanna and SK Naradda Gamage

Department of Economics, Rajarata University of Sri Lanka, Mihintale, 50300, Sri Lanka.
amashasumanapala@gmail.com

1. Introduction

Microcredit programs have emerged as a powerful tool for poverty alleviation and economic empowerment in developing countries. Those programs aim to disburse small credit facilities to individuals and groups to promote self-employment and financial access (Memon et al., 2020; Niranjala et al., 2024). Microcredit groups have emerged as a vital mechanism for promoting financial inclusion and alleviating poverty, especially in low-income and rural areas. These groups provide small loans to individuals who often lack access to traditional banking services due to a lack of collateral, credit history, or financial literacy. Microcredit groups facilitate economic empowerment and help lift individuals and families out of poverty by enabling borrowers to invest in income-generating activities, such as small businesses or agricultural ventures. *Microcredit group sustainability* refers to the long-term viability of a microcredit group in fulfilling its goals of financial empowerment and poverty alleviation for its members (Kayembe et al., 2021; Nwachukwu, 2014; Perera, 2021). It is a multifaceted concept encompassing financial health, social cohesion, and institutional robustness, and it is comprised with three aspects of sustainability, namely financial, social, and institutional sustainability (Bhuiyan et al., 2023; Sharif Hossain & Azam Khan, 2016). Financial and social sustainability directly affects a microcredit group's long-term viability. Financial sustainability indicates the loan repayment rate cost coverage and access to capital (Kinde, 2012; Memon et al., 2020). Social sustainability indicates trust and cooperation, social belief, social network, social capital, and relationships with members of microcredit groups (Firdaus, 2020; Zainuddin, 2017).

Despite their potential, microcredit groups face several challenges that hinder their sustainability. High default rates on loans, driven by factors such as inadequate financial education, economic shocks, and poor management practices, threaten the financial viability of these groups (Memon et al., 2020; Sharif Hossain & Azam Khan, 2016). Additionally, many microcredit groups operate in environments with limited market access and inadequate infrastructure, making it difficult for members to generate sufficient income to repay loans (Kinde, 2012; Nwachukwu, 2014; Perera, 2021). Microcredit groups are playing a significant role in empowering rural communities and however ensuring the long-term viability of microcredit groups, or their sustainability remains a key challenge (Hulme & Mosley, 2016). Social dynamics within groups, including issues related to trust, leadership, and conflict resolution, play a critical role in determining their effectiveness and sustainability (Kayembe et al., 2021; Zainuddin, 2017). Understanding these challenges is essential for improving the design and management of microcredit programs. Therefore, this study aims to investigate the factors influencing the sustainability of microcredit groups by exploring financial and social dimensions.

2. Materials and Methods

This study adopts a qualitative approach to explore the factors influencing the sustainability of microcredit groups, emphasizing an in-depth understanding of the financial, social, and dimensions affecting microcredit sustainability. Thirteen (13) microcredit groups operating in the Anuradhapura District were chosen for the study. The groups were selected using a purposive sampling method, which ensured that both successful and struggling were included. Semi-structured interviews were the primary data collection method, and the interviews with

group leaders lasted 30 to 45 minutes. The responses under the criteria of group leaders in the rural and semi-urban areas in Anuradhapura District that currently have ongoing microcredit groups and have more than three years of operation period have been included in the sample. The groups with a minimum number of group members below three members and groups that are not functioning or have become dormant were excluded from the sample. The two dimensions of sustainability were identified using thematic analysis.

3. Results and Discussion

The socio-demographic profile of microcredit groups is affected by the sustainability of the microcredit group. Figure 1 presents the socio-demographic characteristics of the groups.

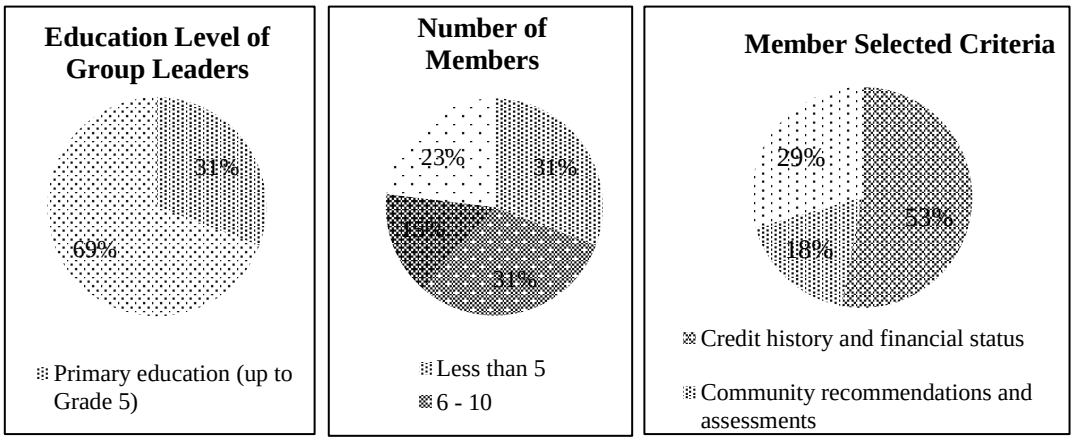


Figure 1: Socio-demographic Profile

Considering the education level, Figure 1 shows that 69% of group leaders have completed secondary education, and 31% have only completed primary education. Regarding the group size, some groups have as few as five or six members (C5, C6, C9, C10), and others, like C4 and C13, have up to 21 members. Member selection is primarily based on income level and financial need, with several groups (C1, C4, C8, C12, C13) also including government mandates such as Credit Information Bureau (CRIB) checks as part of the criteria. Additionally, community recommendations and assessments are used in a few cases (C4, C8), while groups like C9 and C10 have selected members based on their status as Samurdi beneficiaries, a government poverty alleviation program.

Table 1a: Key Findings - Key Dimensions of Sustainability of Microcredit Group

Themes	Categories	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
Financial Sustainability	Loan Repayment Rates	*	*	*	*	*	*	*	*	*	*	*	*	*
	Access to Capital	*	*		*	*	*	*	*	*	*	*		
	Operation Cost									*		*		
Social Sustainability	Trust and Cooperation	*	*	*	*	*	*	*	*	*	*	*	*	*
	Social Network				*					*	*	*		
	Social Capital		*		*	*	*	*	*				*	*
	Social relationship with members	*		*		*		*	*	*	*	*		*

Source: Field Data, 2024

Considering the financial and social factors that affect the sustainability of microcredit groups, the key finding (Table 1a) presents the patterns observed during the 13 case studies. Three themes can be identified in the financial sustainability of microcredit groups: Loan repayment rate, Access to capital, and Operational cost. Social factors have become significant in microcredit group sustainability, especially Trust and Cooperation, Social Networks, Social Capital, and social relationships with members.

According to the main findings (Table 1b), C1, C2, C3, C4, C6, C8, and C9 mention that all members pay their installments on time. Respondents C5, C7, and C10 provide evidence that they cannot pay their installments on time because of the country's economic situation. The income levels of the group members are typically low, which has become a challenge while running the team. C7, C9, C10, and C11 revealed that some people have no primary income source and depend on the agricultural sector. Some groups have taken these microfinance loans to start a new business or improve their existing businesses. According to C9 and C11, there is no special consideration for the operational cost regarding their activities. Occasionally, transportation cost is considered as their operational cost.

Table 1b: Key Findings - Key Dimensions of Sustainability of Microcredit Group

Themes	Categories	Exemplary Quotes
Financial Sustainability	Loan Repayment Rates	"Our group has not had any cases where the members of the group were inconvenienced due to non-payment of installments" (C1). "There are people who are not self-employed and pay their installments from their salary, which is not enough to pay the loan installments and causes financial problems" (C7).
	Access to Capital	"Many of the members are farmers, and sometimes their income decreases, and because of that, they cannot pay their installments" (C7).
	Operation Cost	"There are many people in our group who are engaged in such business, and those who have taken loans from them have been successful in their businesses" (C2).
Social Sustainability	Trust and Cooperation	"There is good trust and cooperation among team members. In an emergency, if any member is unable to pay the installment, the other will help" (C8).
	Social Network	"We work as one team; if there is a special work of our family, we each other give a good help, e.g., wedding, constructing a house, and other special event of the family" (C9). "Normally, we help each other with our day-to-day work, especially agricultural activities where we need more labor. Therefore, our small group is very useful for us" (C10).
	Social Capital	"There are no family members in our group. It is better to involve trusted people who are not relatives or friends in the group. Even if we see a mistake made by another person in the group, we can say it to him without any problem because we have no close relationship" (C8). "When the members are selected for a loan facility, they are selected for their loyalty and friendships. After that, the group gets separated when they pay off the loan. This cannot be successful with friends and relatives" (C4). "When relatives and friends are members, problems arise in the team. If there are members who do not pay loan installments, this microcredit program in villages is not successful (C4).
	Social relationship with members	"Positive relationships positively impact our day-to-day activities" (C11). "Good relationship with team will positively impact our day-to-day activities" (C10).

Source: Field Data, 2024

Social factors have become significant in microcredit group sustainability, especially in a society with strong social networks and high trust. Trust and cooperation are consistently high across all groups (C1-C13), indicating a solid internal social dynamic that promotes mutual support and accountability. Hence, trust is the key to strengthening social bonds in social networks, which helps to achieve shared goals easily.

Building trust needs intensive interaction among individuals within a group. Respondents C1, C2, C3, and C4 provide evidence of how social networks affect group sustainability. Social capital, including shared values and common goals, is prevalent in many groups (C1, C5, C6, C7, C8, C12, C13), further reinforcing their social cohesion. Social capital, which encompasses two main elements, social networks, and trust, is critical for group sustainability. Social relationships among members, which promote interaction and trust, are present in the majority of the groups. C4, C5, C8, and C12 show strong social ties, which may enhance their resilience in the face of external challenges, contributing to overall group sustainability.

4. Conclusion

This study explored the factors influencing the sustainability of microcredit groups by examining financial and social dimensions by adopting a qualitative case study method. The investigation identifies the financial and social factors of microcredit group sustainability. Loan Repayment rates, Access to capital, and Operation costs were significant financial factors contributing to the sustainability of microcredit groups. Social factors are Trust and cooperation, social network, social capital, and social relationships with members of sustainability of microcredit groups. This study emphasizes the more critical approach to the main success to which microcredit groups can achieve goals and their business can succeed and contribute to economic growth, enhance borrower's capacity to manage their loan to support their business, and subsequently, they can manage repayment and success the group sustainability. Besides, according to the study, financial management training, lowering high-interest charges, and raising repayment awareness can help to improve microcredit groups while also improving individual borrowers' financial results and building a responsible financial culture.

5. Acknowledgment

This article is funded by a research project titled: Impacts of Microfinance on the Sustainable Rural Development Process in Rural Sri Lanka: Current Issues and Future Challenges. Grant No. (RJT/R&PC/2024/R/FOSH/02) - Department of Economics, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka.

6. Keywords

Financial sustainability, Microcredit groups, social capital, Social sustainability

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The Moderating Effect of Firm Age and Firm Size: Internationalization of Small and Medium Enterprises (SMEs) Towards Export Performance in Agro-based Firms in Sri Lanka.

Buddhika Hettiarachchi[1], Siti Khalidah Md Yusoff [2] and S.M. Ferdous Azam[2]

[1] *Department of Economics, Rajarata University of Sri Lanka, Mihintale, 50300, Sri Lanka.*
hettiarachchi@ssh.rjt.ac.lk

[2] *Graduate School of Management, Post Graduate Centre, Management and Science University, University Drive, Off Persiaran Olahraga, Section 13, 40100, Selangor, Malaysia.*

1. Introduction

The internationalization of Small and Medium Enterprises (SMEs) is identified as the main strength of economic growth, competition, and new workplace design (Bužavaitė et al., 2019) as well as the important strategic sector for promoting economic growth and social development in developed and developing countries(Prasanna et al.,2022). Exporting is the most adopted mechanism for entry and expansion mode of internationalization Madushanka and Sachitra (2021). Research on the exporting experience of SMEs has faced many relevant issues, such as firm-specific characteristics like firm size and firm internal and external environmental factors.

As a firm-specific resource, firm size determines its competitiveness (Felzensztein et al., 2022), the firm's exporting actions, and its success (Love & Ganotakis, 2013). Smaller companies vary from big companies in ownership, independence, management style, and size/scope of operations (Ruzzier & Ruzzier, 2015). Larger companies will be able to compete more successfully and efficiently than smaller companies because they have more resources and capabilities (Abdul-Talib et al., 2011). In RBV, firm size is considered as a proxy for organizational resource base. While small companies have limited resources, larger companies have more human and financial capital and productive capacity (Stoian et al., 2011). Most of the research indicates that firm size moderates firm performance and internationalization, despite the fact that some researchers came to the opposite conclusion (Farooq et al., 2021). Majocchi et al.(2005) empirically tested the impact of firm size on export intensity; in addition to that, the additional salient feature that helps internationalization is the firm's age(Ruzzier & Ruzzier, 2015). Older businesses also stand a better chance of surviving than newer ones. A firm's age is defined as the number of years in operation of a firm measured from the time of commencement to date (Mabenge et al., 2022). The majority of researchers found a direct correlation between firm age and internationalization. Many researchers have emphasized the moderating effect of firm age on performance and internationalization (Aziz & Samad, 2016; Lakshman et al., 2023).

The SME sector in Sri Lanka accounts for more than 75% of the total number of enterprises, 45% of employment opportunities, and 52% of the Gross domestic product (Robinson & Kengatharan, 2020). In the Sri Lankan context, Small and Medium Enterprises cover various sectors such as agriculture, manufacturing, construction, and service industries (Bernard et al., 2019). According to the Census and Statistical Department of Sri Lanka's report, there are 1,017,267 micro, small and medium enterprises, compromising 73% of all SMEs operated in rural areas in Sri Lanka (Bandara et al., 2024). However, 82% of export enterprises provide only around 5% of total export-to-export earnings (Mudalige, 2017). Also, 70% of SMEs are closed down within three years of commencement, and 60% of them within the first year of commencement. According to the above discussion, while some firms perform well in the international and domestic markets, some of them are not in the international market within a short period of time. The above research issues provide plausible explanations to explore these

in greater detail in the present and in the future. The main objective of the study was to identify whether there is an effect of firm age and firm size on the internationalization of SMEs towards the export performance of agro-based SMEs in Sri Lanka.

2. Materials and Methods

Due to the nature of the phenomenon studied in this study, we have adopted a quantitative approach, positivist paradigm and analytical survey-based methodology. The general population of this study is 3800 SMEs in Sri Lanka. The target population was 1352 SMEs that exported agro-based products to the export directory of the Export Development Board (EDB) in Sri Lanka in 2018. Among these 1352 agro-based SMEs in the four provinces as Western Province, North-Western Province,Southern Provience and Central Province in Sri Lanka. Considering the proviencial contributions, North Western Provience recorded the highest contribution to agriculture activities within the share of 18.3 per cent to the GDP following 14.6 per cent 13.7 per cent and 11.4 per cent in Southern Provience, Central Provience and Western Provience respectively. Total of 301 SMEs were in the sample. Based on the nature of this study it tries to explore the internationalization of agro-based SMEs. These three proviences. The present study uses random sampling under the probability sampling technique. The research was conducted through SMEs involved in the agro-based sector, which operates in above provinces. Owners and managers of SMEs were considered as the sample unit. The questionnaire for the present study was distributed through email to potential respondents to participate in the survey. Further, relevant SME owners and managers were contacted via telephone, inviting them to take part in the survey by filling out a Google form (online questionnaire). The questionnaire was available to respondents for three months. In addition, private face-to-face interviews with SME owners and managers of the companies were conducted to fill out the questionnaire. For statistical analysis, Smart PLS software has been used to meet the research objectives and to test the hypothesis constructed. Data analysis starts with the application of exploratory factor analysis (EFA) as a purification mechanism to minimize the data and uncover underlying factors. The next stage deals with the applicability of confirmatory factor analysis (CFA) to test and improve model fit indices. The last stage involves a path diagram on Smart PLS software to determine the moderating effects with their level of significance. After having a thorough evaluation of prior empirical research, this study uses well-established multi-item measures to find the relationship between independent and dependent variables.

The current study consists of one dependent variable as export performance and two independent variables as external environment and external environment. The variable internal environment has four dimensions as firm capability, financial capability, management capability, and entrepreneurial orientation. Governmental support, networks, and economic integration are the three dimensions in external environment. The study uses multi-item five point Likert-scales attached by 1=”Strongly disagree”, and 5 = “strongly agree” and three open ended questions to measure the size of the firm, age of the firm, and engage in international activities..This study identifies four type of variables- dependent, independent mediating, and moderating variables to develop the theoretical framework. The moderating variable is the variable that affect or strengthens the linkage between independent and dependent variables. Moderating variable may be formed as qualitative and quantitative”(As Azam et al..2021).

3. Results and Discussion

Internal consistency is most commonly used measure of reliability, which applies to the consistency among the variables in a summated scale. High Cronbach’s alpha values indicate that response values for each participant across a set of questions are consistent According to the table, all the variables have higher Cronbach's Alpha values than their benchmark levels. It means that items are sufficiently consistent to indicate the measure is reliable.

Exploratory Factor aAnalysis(EFA) was conducted for all constructs. The items BC1, BC2, BC3, BC4, BC5, FC1, MC3, MC6, EO1, EO2, GS1,GS2, GS3, GS4, UT1, UT2, NR1, NR2,NR3, NR4,NR5,NR6, NR7, NR10, and NR13 loaded unexpectedly. Those items were removed before further analysis. After removing those items the following results were obtained.

Table 1: Factor loadings and reliability

Dimensions and Items	Composite reliability	AVE	Cronbach's Alpha
Firm Capability	0.898	0.639	0.849
Financial Capability	0.881	0.598	0.821
Management Capability	0.896	0.684	0.845
Entrepreneurial Orientatio	0.949	0.726	0.936
Government Support	0.909	0.769	0.865
Economic Integration	0.945	0.776	0.927
Networking	0.890	0.429	0.869
Internationalization	0.908	0.532	0.848
Export performance			0.931

According to the results of the AVE analysis, the first-order constructs, all the AVE values are above the rule of thumb of 0.50. Further, this table shows that the CA and CR statistics are above the threshold of 0.70. Overall, CA and CR values indicate that the survey respondents agree that each set of the 57 sub-information items relates to the respective 08 information dimensions.

Confirmatory Factor Analysis (CFA) via Individual Measurement Model

Under this section, CFA is carried out at the overall measurement model level. Here, the variable internationalization mediates the 02 (two) independent variables, and export performance is treated as the dependent variable. Further, the size and age of the firm are considered the moderating variables.

Table 2: Hypothesis testing

Hypothesis	Relationship	Std. Beta	Std. error	t- value	Decision	f2	95% CI LL	95%CIUL
H1a:	BC -> INT	0.265	0.059	4.568**	Supported	0.081	0.166	0.357
H1b:	FC -> INT	0.361	0.057	6.31**	Supported	0.167	0.27	0.453
H1c:	MC -> INT	0.141	0.057	2.404*	Supported	0.025	0.046	0.233
H1d:	EO -> INT	0.016	0.048	0.302	Not Supported	0.000	-0.059	0.09
H2a:	GS -> INT	0.001	0.051	0.101	Not Supported	0.000	-0.079	0.092
H2b:	NR -> INT	0.128	0.04	3.245**	Supported	0.038	0.061	0.19
H2c:	UT -> INT	0.158	0.045	3.566**	Supported	0.054	0.08	0.224

*** p<0.01, *p<0.05 (Effect size impact indicator are according to Cohen(1988), f^2 value 0.35(large), 0.15(medium), and 0.02(small))*

According to the findings, all other dimentipons except entrepreneural orientation and government support are statistically significant in the model.

Table 3: Moderating effect of age on internationalization

Relationship	Std. Beta	Std. error	t-value	Decision	f^2	95% CI LL	95%CIUL
Age -> INT	-0.51	0.435	1.171	Not supported	0.007	-1.281	-0.18
Age*INT -> INT	0.01	0.008	1.204	Not supported	0.008	-0.003	0.023

According to the results given in the above table, the Age variable does not directly affect the internationalization of SMEs. However, hypothesis H6 tested the indirect effect of the relationship between the internal environment and the internationalization of SMEs. According to the results, the relationship between the internal environment and the internationalization of SMEs strengthens with the firm's age. However, the said impact is insignificant. Hence, H6 is rejected. The results shows that international operations of agro-based SMEs are not moderated by the age of the firms. Because of sub-contracts, personal relationships directly open the window for exports.

Table 4: Moderating effect of firm size on internationalization

Relationship	**Std. Beta**	**Std. error**	**t- value**	**Decision**	**f^2**	**95% CI LL**	**95%CIUL**
Size -> INT	0.93	0.366	2.584	Supported	0.021	0.393	1.552
Size*INT -> INT	-0.003	0.001	2.673**	Supported	0.021	-0.005	-0.001

According to the table, internal environmental factors and the internationalization of SMEs are weakened by the size of the firm. This moderating effect is statistically significant. Since the enterprises can be classified into different categories according to their size, the most common criterion is the number of people employed. Therefore, this study employed the number of employees as the predictor for firm size, as used in previous research. Abbasi & Malik (2015) observed that firm size impacts internationalization as larger companies are more likely to have more room for international operations regarding 50 listed companies on the stock exchange in Pakistan. Conversely, the result of this study reveals that firm size does not moderate the relationship between internal environment, which consists of firm capability, financial capability, entrepreneurial orientation, and management capability. It also found that firm size is a direct predictor of internationalization. The findings reveal that firm size could determine SMEs in Sri Lanka to better international operations.

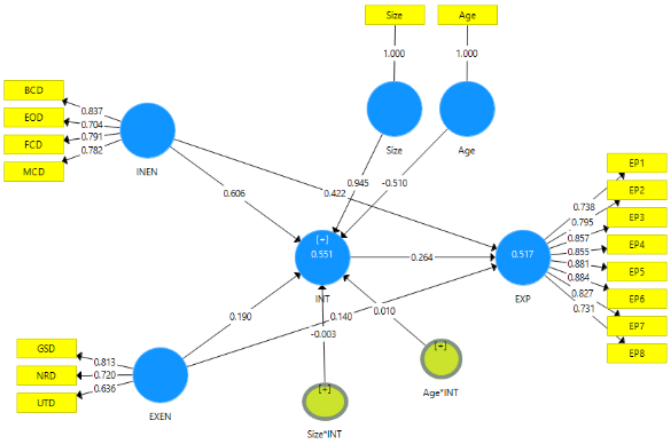


Figure 1: The visual output for SMARTPLS algorithm

4. Conclusion

This research found that factors in the internal environment, namely firm capability, financial capability, and management capability, positively influence SME internationalization towards export performance in Sri Lanka. The study results reveal that firm size does not directly affect the internationalization of SMEs and does not moderate the impact of internal and external environment internationalization of SMEs. The reason for this is that most industries also export their goods through an intermediate firm. So, the no of employees, which denotes the firm size, is not a considerable factor in internationalization. Further, the relationship between the internal environment and the internationalization of SMEs strengthens with the firm's age. However, the said impact is insignificant. The firms receive cost advantages in the long run. However, our study focuses on agro-based industries. As they are agro-based industries, age is not an important determinant of the internationalization of Sri Lankan agro-based industries. The beginners start to export via intermediatory firms, which have a direct relationship with foreign importers; the outcome of this research will enhance our understanding of the success factors of SME internationalization and provide insights for policymakers and SME managers in Sri Lanka.

5. Keywords

Agro-based Firms, Export Performance, Internationalization, Small and Medium Enterprises (SMEs)

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IRSSSH 2024

International Research Symposium on Social Sciences and Humanities

Track 4
Environmental Management, Geography and Development Studies

Integrating Sciences for Sustainable Environments



A Geospatial Analysis to Identify the Flood Vulnerability in Nilwala River Basin, Matara District

T.M.R.S. Bandara

Department of Geography, University of Ruhuna, Matara, Sri Lanka. supun.17671@uhss.ruh.ac.lk

1. Introduction

Flooding ranks as one of the most frequent and impactful natural disasters in Sri Lanka, with the Matara District, located in the country's southern region, being particularly susceptible (Senaratne, Wickramasinghe, & Perera, 2020). The district's vulnerability is heightened by the Nilwala River, which, as a significant waterway, amplifies flood risks under heavy rainfall and monsoon patterns. Recent data shows that water levels in the Nilwala River fluctuate significantly due to seasonal rains and intensified human activities, contributing to increasingly severe floods and raising concerns about the district's flood management practices (Department of Meteorology, 2023; Senaratne et al., 2020). As a coastal district, Matara faces additional pressures from climate change, including rising sea levels and more variable rainfall patterns, which compound flood risks. From May to September, the southwest monsoon brings Matara its heaviest rainfall, often causing the Nilwala River to exceed safe levels (Fernando, Jayasinghe, & Perera, 2021). In 2023, the Meteorological Department reported heightened extreme weather events, with more frequent and intense rainfall leading to repeated flood incidents across the district (Department of Meteorology, 2023). Additionally, Matara's low-lying plains and insufficient drainage infrastructure exacerbate the impact of these flood events on both urban and rural communities (Senaratne et al., 2020). This study employs a geospatial approach to address the Nilwala River Basin's complex hydrology and enhance flood risk management strategies. Using Geographic Information System (GIS) technology, this research aims to map flood-prone areas and assess the socio-economic vulnerabilities of affected communities.

1.1. Aim and Objectives

This study aims to identify flood-prone zones within the Nilwala River Basin in Matara District and to evaluate the socio-economic impacts on communities residing in these areas. The study seeks to contribute to more effective flood mitigation strategies in Matara District by enhancing spatial understanding of flood risks.

1.2. Specific objectives include

- Mapping flood-vulnerable areas using GIS-based geospatial analysis.
- Assessing socio-economic vulnerabilities and impacts on communities within high-risk flood zones.
- Proposing flood mitigation strategies based on spatial and socio-economic findings to enhance resilience in flood-prone areas.

2. Materials and Methods

2.1. Study Area

The Matara District, located in southern Sri Lanka, is bounded by the Galle and Hambantota districts and situated along the Nilwala River, near the coast (Senaratne, Wickramasinghe, & Perera, 2020). It spans an area of approximately 1,282.5 km² (128,250 hectares), covering about 1.96% of Sri Lanka's total land area (Department of Meteorology, 2023). Geographically, Matara is located between latitudes 5.8–6.4°N and longitudes 80.4–80.7°E (Fernando, Jayasinghe, & Perera, 2021). The district has a tropical climate, receiving an average annual rainfall of 2,564.9 mm and experiencing an average temperature of 29.1°C. It comprises 650 Grama Niladhari (GN) divisions, which provide administrative delineations critical for spatial data analysis within the region.

2.2. Data Sources

To identify flood-prone zones within the Nilwala River Basin, this study utilized a two-step process. First, key flood causative factors were identified, including rainfall, topography, and land use. Next, these factors were analyzed to map areas of flood vulnerability using the Multi-Criteria Decision Analysis (MCDA) technique (Kandili, Wijesundara, & Rathnayake, 2022).

The primary datasets were obtained from open-source and institutional sources, as summarized in Table 01. Land Use and Land Cover (LULC) data, essential for understanding human impact on flood susceptibility, was derived through a combination of Survey Department data and field validation, using high-resolution satellite imagery where available (Fernando, Jayasinghe, & Perera, 2021). Additionally, a Digital Elevation Model (DEM) from the Shuttle Radar Topography Mission (SRTM) was used, with a spatial resolution of 30 meters, which was suitable for detailed topographical analysis. The data collected provides comprehensive input for modeling flood risks, capturing both natural and human-induced factors.

Table 01: Summary of Data Sources and Specifications for Flood Vulnerability Analysis

Input Data Type	Scale	Data Derived (Source)
Rainfall Data	-	Meteorological Department of Sri Lanka, 2023
Land use	1:10,000	Survey Department of Sri Lanka, 2024
Slope	DEM (SRTM)*	www.usgs.earthexplorer.com
Elevation	DEM (SRTM)	www.usgs.earthexplorer.com
Water Bodies	1:10,000	Survey Department of Sri Lanka, 2024
Road Network	1:10,000	Survey Department of Sri Lanka, 2024

**Shuttle Radar Topography Mission (SRTM)*

2.3. Analytic Hierarchy Process (AHP) and Multi-Criteria Decision Analysis (MCDA)

To assess flood vulnerability, the study employed the Analytical Hierarchy Process (AHP) alongside the Multi-Criteria Decision Analysis (MCDA). The AHP method assigned weights to each flood-related parameter, such as rainfall, slope, elevation, and land use, based on their relative impact on flood risk. This weighting process allowed for a hierarchical structure where each criterion was prioritized according to its significance in flood susceptibility. The AHP is advantageous for this study because it facilitates a structured decision-making approach, helping researchers weigh complex factors about flood risks. MCDA, in turn, was applied to classify and rank areas based on their flood vulnerability, integrating weighted criteria into a single composite index of flood risk. This combined AHP-MCDA approach enabled the identification of high-risk flood zones within the Nilwala River Basin and provided a systematic framework for subsequent spatial and socio-economic impact analyses (Senaratne, Wickramasinghe, & Perera, 2020).

3. Results And Discussion

Table 02: Vulnerability Parameters, Ranks, and Weights

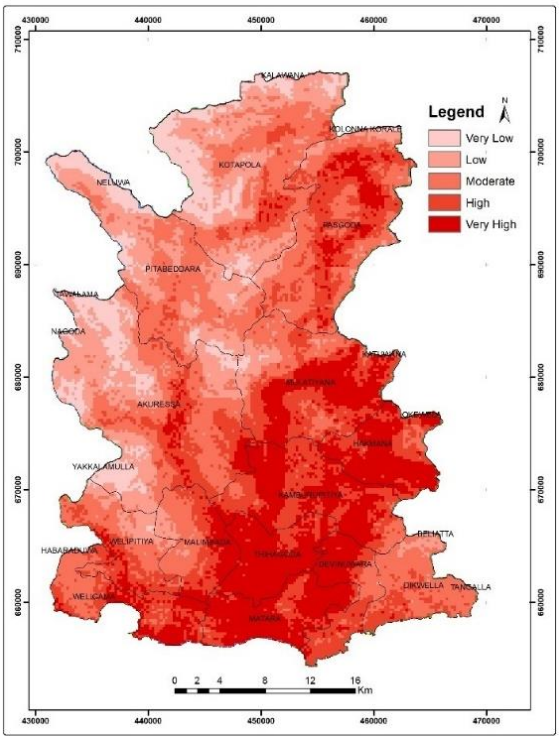
Criteria	Class	Vulnerability Ratings	Vulnerability Ranges	Weight
Rainfall (mm)	113 – 118	3	Moderate	25
	119 – 123	3	Moderate	
	124 – 129	5	High	
	130 – 134	7	Very High	
	135 - 139	7	Very High	
Slope (Degree)	0 – 1.6	7	Very High	15
	1.7 – 4.1	5	High	
	4.12 – 7.37	1	Less	
	7.38 – 11.9	0	Risk Free	
	12 – 26.9	0	Risk Free	

Elevation (m)	0.29 – 89.9	3	Moderate	15
	90 – 224	1	Less	
	225 – 395	0	Risk Free	
	396 – 659	0	Risk Free	
	660 - 1140	0	Risk Free	
Land use (Types)	Water bodies	7	Very High	10
	Buildup Area	7	Very High	
	Shrubs	5	Less	
	Dense Vegetation	5	Less	
	Settlements	3	Very High	
Water Bodies (m)	<2400	7	Very High	25
	2410 – 4800	7	Very High	
	4810 – 7190	5	High	
	7200 – 9590	3	Moderate	
	9590>	1	Less	
Road Network (m)	<1580	7	Very High	10
	1590-3170	7	Very High	
	3180-4750	5	High	
	4760-6330	5	High	
	6330>	3	Moderate	

Source: Created by Author, 2024

According to the above criteria, high flood-risk areas were identified according to the AHP method for the year 2023. The areas of Akurassa, Thihagoda, Maliboda, Hakmana, and Mulatiyana were identified as heavily damaged due to the risk of flooding.

Map 01: Flood Risk Map of Matara District



Source: Created by Author, 2024

Using the criteria outlined above, areas with the highest flood vulnerability were identified. The locations of Akurassa, Thihagoda, Maliboda, Hakmana, and Mulatiyana exhibited significant flood risks due to a combination of environmental and infrastructural factors. Field observations confirmed that both climatic conditions and unplanned construction intensified

the flood risk in these areas. A vulnerability map (included as Figure 1) further illustrates the spatial distribution of these high-risk zones.

Table 03: Risk Area Calculation

Risk Level	Area (sq km)
Very High	289.38
High	295.89
Moderate	370.52
Low	235.80
Very Low	101.30

Source: Created by Author, 2024

Human Impact on Flood Vulnerability

Flood risk in Matara District is influenced not only by natural factors but also by human activities such as deforestation, unregulated urban growth, and inadequate flood control measures. For instance, deforestation in upper catchment areas of the Nilwala River has reduced the natural absorption capacity of the land, resulting in higher surface runoff during heavy rainfall. Additionally, unplanned urban infrastructure in coastal areas has obstructed natural drainage pathways, further increasing flood vulnerability. The vulnerability map provides a comprehensive view of these combined risks, underscoring the need for geospatial techniques in flood management.

Socio-Economic Impact

Through questionnaires, observations, and field visits, socio-economic impacts of flooding were assessed across three major categories: infrastructure damage, health issues, and impacts on agriculture. The floods of 2023 severely disrupted daily life, with extensive damage to roads and infrastructure isolating communities, especially in rural areas. Health issues due to contaminated water sources led to an increase in waterborne diseases, such as cholera and dengue, while standing floodwaters posed risks for injury. Psychological stress was also reported, as families faced evacuations and property loss.

Agriculture, particularly paddy and other crop cultivation, suffered extensive damage. Many farmers faced severe financial setbacks due to the loss of crops and arable land, which impacted the local economy reliant on farming. This loss of income has set back the agricultural sector in the district, indicating the need for effective flood management strategies to protect livelihoods.

4. Conclusion

In conclusion, the geospatial analysis of flood susceptibility in the Nilwala River Basin, Matara District, sheds light on the region's multiple concerns. The use of geographic information systems (GIS) and remote sensing technology revealed that some regions along the Nilwala River are extremely vulnerable to flooding due to their terrain, proximity to the river, and land use patterns. The study emphasizes the significance of early warning systems and flood mitigation structures in these areas to avoid recurring disasters.

Furthermore, flooding has a significant socioeconomic impact in this region, with vulnerable people generally suffering the brunt of the damage. Floods impair agricultural activities, which are the economic backbone of many households, causing food insecurity and income loss. Furthermore, damage to infrastructure, such as roads, bridges, and residences, exacerbates poverty and restricts access to critical services like healthcare and education. Low-income families, who lack the financial resources to recover fast, are disproportionately affected, perpetuating a cycle of vulnerability that exacerbates socioeconomic inequality. To solve these

concerns, a multifaceted solution combining strong flood management methods, socioeconomic support for vulnerable populations, and sustainable development practices.

Collaboration among government officials, local communities, and foreign stakeholders is critical in finding long-term solutions that reduce flood risks, improve community resilience, and support long-term economic growth in the Matara District. This study emphasizes the crucial role of geospatial technologies in flood risk management and serves as a foundation for future research and policymaking to reduce flood vulnerability in the Nilwala River Basin while addressing the region's underlying socioeconomic challenges.

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Military Geography; A Historical Perspective from Colonial Period of Sri Lanka

T.P.G.R.U. De Alvis and P. Jayasingha

Department of Geography, University of Colombo. raveenumesha1999@gmail.com

1. Introduction

Military geography, the study of how geography influences military operations, has been a strategic consideration throughout history. The interplay between geography and military strategy has been a cornerstone of human history. Ancient civilizations like the Greeks utilized terrain advantage to defend against larger forces, while empires like Rome constructed infrastructure to secure their vast domains. In contemporary times, the rugged Afghan landscape continues to pose significant challenges to invading armies, highlighting the enduring impact of geography on warfare. Sri Lanka, a teardrop-shaped island nation in the Indian Ocean, is a prime example of how geography can shape military history. Its unique geographical features, including rugged terrain, dense jungles, and towering mountains, have served as formidable natural defenses against invaders for centuries (Gunasinghe, 2016). Hence, the main objective of the study was to analyze how the geographical location was used for the military security of Sri Lanka during the colonial period and its impact on shaping war activities.

2. Materials and Methods

This research investigates the geostrategic significance of battlegrounds in Sri Lanka during its 443-year colonial period, spanning from the arrival of the Portuguese in 1505 AD to the nation's independence in 1948 AD. By analyzing the unique geographical features of seven key battle sites namely Mulleriya, Balana, Danthure, Randeniwela, Gannoruwa, Wellassa, and Matale, this study aims to understand how these landscapes influenced military defense strategies and tactics. Through the investigation of historical records, topographic maps and other secondary data sources, the research explored the interplay between geography and warfare during Sri Lanka's colonial era. Here, a historical study based on descriptive facts from literary sources was presented. By conducting a library survey, relevant historical books and records were consulted to gather primary data. The study investigated historical library bibliographies and works by various authors to explore Sri Lanka's colonial war history. Genealogies and ancient literary sources that provided detailed insights into Sri Lanka's history were also analyzed. The sourced historical facts obtained through the exploration of descriptive facts were analyzed using the 'Reading between line' method through qualitative data analysis methods through content analysis (Burns, 1994).Using above qualitative data analysis methods, analyzed historical accounts to identify the geographical factors that contributed to military victories. By examining the descriptions of battlefields and the tactics employed, were able to discern the importance of terrain and natural features. Finally created hypothetical maps that illustrate the geographical context of the battles to visualize these historical events. These maps helped understand how forces were deployed, lines of communication were established, and strategic advantages were exploited.

3. Results and Discussion

During Sri Lanka's colonial period, the unique geographical features of Giri Durga (mountain fortress), Jala Durga (water fortress), Vana Durga (forest fortress), and Panka Durga (cave fortress) played pivotal roles in shaping military strategies and outcomes (De Silva, 1981). These locations were central to battles named Mulleriya, Danture, Balana, Randeniwela, Gannoruwa, Uva Wellassa, and Matale.

The Danture battle, which took place during the Kandy Kingdom, exemplifies how geography can be a decisive factor in warfare. The Portuguese forces, attempting to isolate the Sinhalese army, exploited the narrow valley's terrain (Koonuwagama, 2018). By blocking the roads on

both sides, they effectively trapped the Sinhalese troops in a confined space. The Sinhalese, however, utilized the surrounding highlands to their advantage, launching attacks on the Portuguese from elevated positions (Fig.1). Ultimately, the Portuguese army's strategic positioning and control of the valley led to their victor

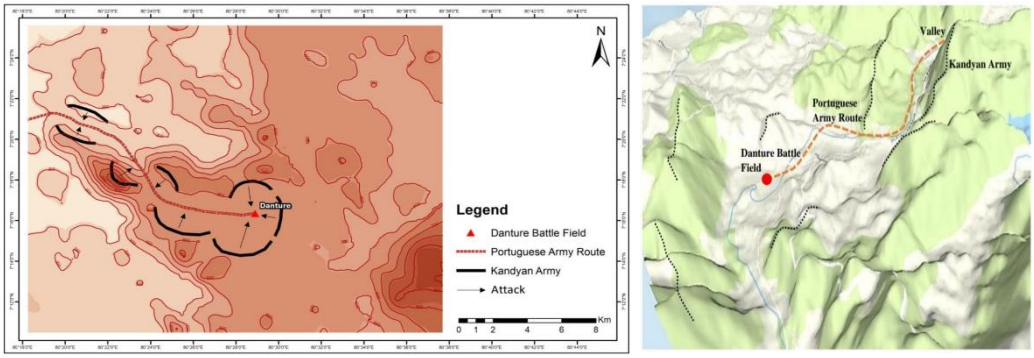


Figure.1: Troop deployment during the Battle of Danture (Created by author based on details from Grenoble and Mahajan, 2006)

The Battle of Balana, also during the Kandy Kingdom, showcases another instance of geography influencing military outcomes. The Sinhalese forces surrounded the Balana fort, creating a circular defensive perimeter on both sides of a narrow valley (Fig.2). This strategic positioning effectively trapped the enemy within the fort, making it difficult for them to escape or receive reinforcements.

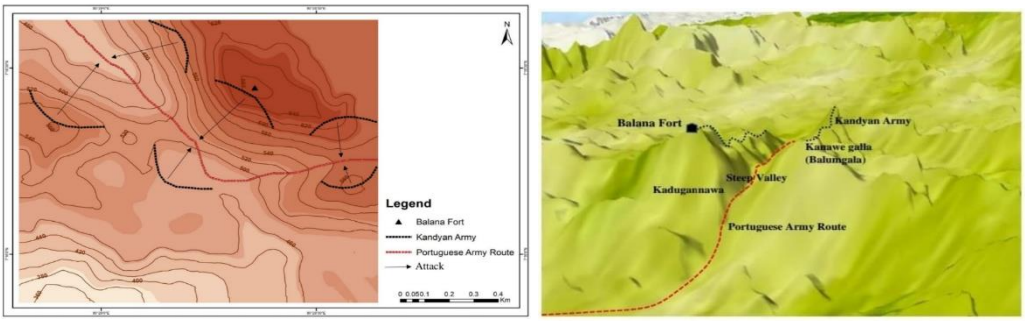


Figure 2: Troop deployment during Battle of Balana (Created by author based on details from Rajawaliya: Suraweera, 1976)

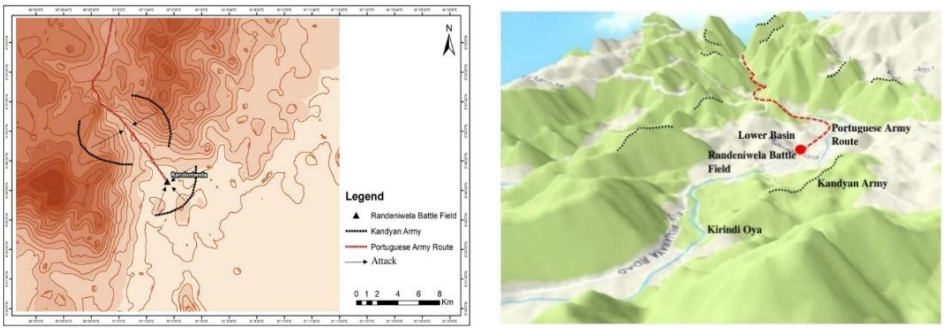


Figure 3: Troop deployment during the Battle of Randeniwela (Created by author based on details from Rajawaliya: Suraweera, 1976)

During the Kandy Kingdom in 1630, the Battle of Randeniwela showcased the strategic advantage of mountainous terrain. The low basin surrounding Randeniwela, encircled by hills, proved to be a natural fortress (De Queiroz, 1930). The Kandyan army, positioned in the highlands, effectively trapped the Portuguese forces in the valley below. The Portuguese were encircled in a crescent shape, their movements restricted by the surrounding mountains. The Kandyan army launched coordinated attacks from three sides, forcing the Portuguese to retreat towards the Badulu Valley and Kirindi Oya (Fig.3). The Kandyan forces employed guerrilla

tactics, utilizing the narrow valley's terrain to their advantage. They cleared trees, dug up the ground, and ambushed the Portuguese forces. As the Maha Vamsa records, arrows rained down from the surrounding hills, creating a veritable cloud over the Portuguese camp. Trapped in the Badulu basin with no escape, the Portuguese army was eventually defeated (Geiger, 1958).

The strategic importance of terrain was evident in subsequent conflicts. During the Uva Wellassa Rebellion of 1818, the British army exploited the geographical characteristics of the Uva basin. Positioned on the surrounding hills, they were able to trap and attack the rebel forces in the valley below. Similarly, in the Battle of Matale in 1840, the British advanced along the Mahaweli River valley while upland troops surrounded and attacked the enemy forces (Powell, 2007).The mountainous terrain on both sides of the valley provided a strategic advantage, allowing the British to weaken the enemy. The Battle of Gannoruwa, fought in 1638, took place in the Mahaweli River region, approximately 500 meters above sea level within the Kandy city limits. Situated near the Gatambe Port of Ganga, the battleground offered a natural advantage with its water gorges, forest ravines, and gorges. The Sinhalese forces strategically deployed on both sides of the Mahaweli River, effectively preventing the Portuguese from crossing and retreating. The following map illustrates how the enemy forces were encircled and attacked, ultimately leading to their defeat (Fig.4). This strategic use of the terrain's geographical features highlight the importance of understanding and exploiting the battlefield's advantages.

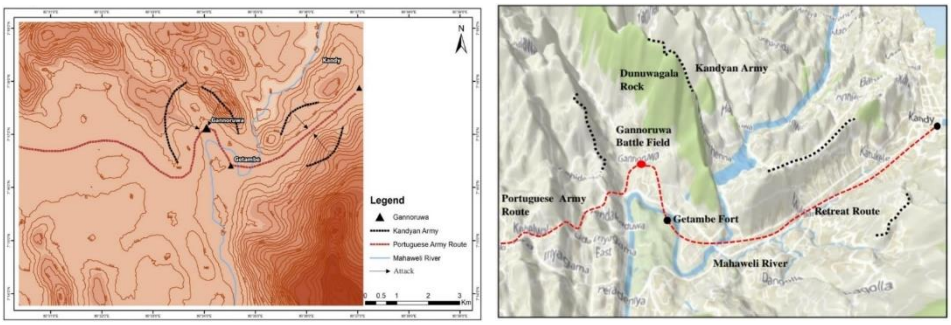


Figure 4: Troop deployment during the Battle of Gannoruwa (Created by author based on details from Rajawaliya: Suraweera, 1976)

The Battle of Mulleriya, fought in 1562, involved a Portuguese army that sailed from Colombo Fort along the Kelani River towards Seetawaka kingdom. Midway, they were ambushed by Seetawaka forces, who trapped and decimated the enemy army in the Mulleriya paddy field (Perera, 2007). The open plains between Mulleriya and Kaduwela proved to be a tactical disadvantage for the Portuguese. Familiar with the terrain, Seetawaka army exploited the open area to launch a surprise attack, overwhelming the Portuguese forces (Fig. 5).

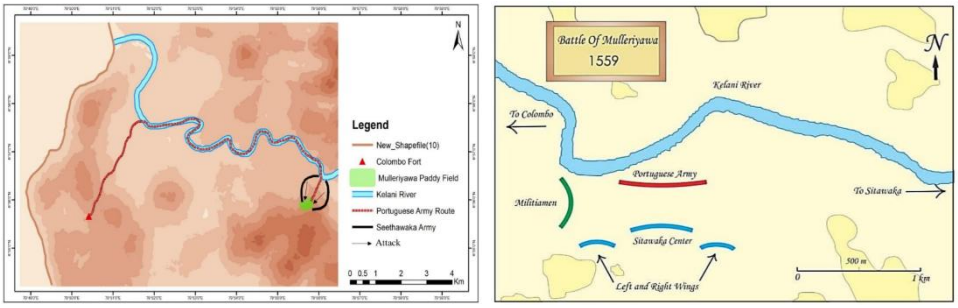


Figure 5: Troop deployment during the Battle of Mulleriyawa (Created by author based on details from 'Kandy fights the Portuguese': Perera, 2007)

This battle demonstrates how the heterogeneity of the battlefield can significantly impact the outcome of a conflict. The Portuguese, unfamiliar with the swampy terrain, were at a distinct disadvantage, further highlighting the importance of understanding the geographical environment. Thus, the contribution of the unique geographical location of the Central Highlands and the natural environment consisting of gorges, water gorges, forest gorges and swampy gorges was immense for the military defense of Sri Lanka during the colonial period. Therefore, it can be investigated based on the results obtained based on the historical sourced evidence uncovered in this study that the geographical phenomena have provided a special contribution in shaping the political independence and military security of Sri Lanka in every war with foreign nations during the colonial period.

4. Conclusion

Throughout Sri Lankan history, the strategic use of terrain has played a pivotal role in warfare. From the ancient Battles to the more recent conflicts, the ability to exploit the natural landscape has often determined the outcome of battles. In key battles named Mulleriya, Danture, Balana, Randeniwela, Gannoruwa, Uva Wellassa, and Matale, the indigenous forces skilfully utilized the main four types of gorges (Giri Durga, Jala Durga, Vana Durga, and Panka Durga) for defensive purposes. The indigenous forces' effective use of these geographical features contributed significantly to the establishment of political sovereignty and military security. This study confirms the vital role of geography in shaping Sri Lanka's war history.

5. Keywords

Colonial period, Geographical features, Historical records, Military geography

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A Study of the Impact of Climate Change and Other Stresses on the Pottery Industry in Sri Lanka

K.A.J.S. Jayasuriya, H.A.M. Peiris, J.M.S.B. Jayasundara and J.E.M.C.L. Gunarathana

Department of Environmental Management, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka, Mihintale. jayasankajs11@gmail.com

1. Introduction

Many traditional occupations in Sri Lanka persist today, with the pottery industry standing out as a significant craft that has endured from ancient times to the present, dating back to the prehistoric Iron Age. Over time, various factors have influenced this industry, with climate change emerging as a critical challenge in recent years. the local pottery industry relies primarily on two types of clay: kaolin and red clay. Notably, red clay deposits in the Lulneva area of the Anuradhapura District, part of Sri Lanka's dry zone, have historically been renowned for their superior quality (H.M.S.N. Batagalla, S.I.L. Senawirathna, P.R.C.P.K. Ariyawansha, 2018). This red clay, once usable in its natural state without additives, was a cornerstone of pottery production. However, the availability of high-quality raw materials has diminished, compounded by the rise of substitute products in the market, which cater to consumer demand for cheaper alternatives. historical land-use patterns in areas engaged in the pottery industry were previously aligned with the resource needs of artisans (Sampath Arunashantha, 2020). However, these patterns have shifted, resulting in a shortage of raw materials. This scarcity, alongside modern challenges, has created significant obstacles for communities reliant on traditional pottery-making. this study primarily investigates the impacts of climate change on pottery-making societies. Sub-objectives include examining the effects of climate change on raw material availability and analyzing its economic impact on rural pottery communities.

2. Materials and Methods

In evaluating the effects of climate change on the pottery sector in Lulneva village situated in Kahatagasdigiliya Divisional Secretariat in Anuradhapura District of Sri Lanka, this study adopted a qualitative research approach. Data was collected through the use of structured interviews informally, while secondary data was obtained from relevant literature sources. As for the gathered data, the techniques used in analyzing them included qualitative and thematic data analysis.

Data collection

Primary data were collected through structured interviews with twenty three selected families from the 60 households involved in the traditional pottery in Lulneva village. The interviews concentrated on stakeholders experiences in pottery making, climate change impacts, legality of separation clay resources, and looking for better means of survival other than clay pottery making.

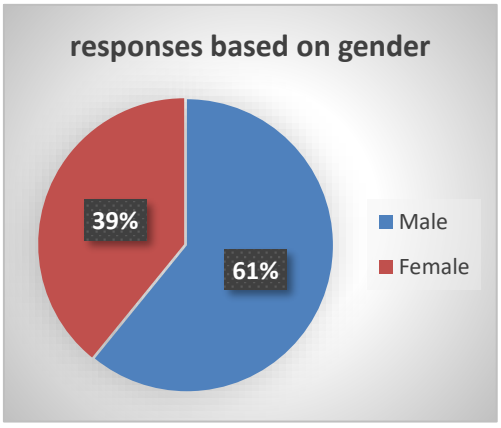


Figure 1. Responses based on Gender

Data analysis

The data collected from 23 families in the traditional village of Lulneva as a convenience sampling was analyzed using the thematic data analysis method. Accordingly, these data were analyzed under three main themes. 01 The impact of current climate change on the traditional clay industry, 02 The economic impact on the people who do the clay industry, 03 The crisis for raw materials. This collected data was analyzed in three main themes.

3. Results and Discussion

A country located in the tropical region of Sri Lanka. With 10-12 hours of sunshine a day, Sri Lanka has been hit by climate change. According to the dry zone division chart of Sri Lanka, the studied village of Lulneva in the Anuradhapura district belongs to the DL1 division. The impact of climate change on the dry region is currently increasing. Rain from the northeast monsoon appears to be a long dry spell every year in this area. The development of long dry weather conditions in this area has significantly affected the quality of the clay, and it has become difficult to maintain the necessary standards for the production of pottery. That was clearly stated by 06 people during the interviews. Due to the current prolonged dry season, the nature of these clays has changed. As evident in the interviews, the durability of clays that change in nature is greatly reduced. It is clear from the study that the climate effect of the natural environment has intensified for this clay. In addition, due to legal regulations, the areas traditionally used to obtain clay are limited. Due to this, the availability of essential resources has rapidly decreased, posing a significant challenge to the local clay industry. For many families in this region, the clay industry is their only source of income, and limiting access to clay has jeopardized their ability to sustain their livelihoods.

It was clear from the interviews that the development activities carried out around the lakes had an indirect effect on their traditional occupations. Many areas where these people obtained raw materials have been reclaimed and it became clear that some areas have been restricted due to problems such as illegal occupation. The wood kiln is mostly used in this village to season the ingredients which are collected with great difficulty. Procuring the required wood for this wood kiln has also been a challenge in some existing legal frameworks. Nowadays, electricity is also required for the clay industry. It is because their main machinery "Sakaporuwa" is now powered by electricity.

Out of the 23 families surveyed in the village, only 6 people have alternative sources of income and the rest are completely dependent on the pottery industry. This over-reliance on pottery, along with challenges caused by the climate, has exacerbated poverty levels in the area. Nowadays, the livelihood of these people is seriously challenged due to the availability of cheaper alternatives in the market instead of pottery. Moreover, lack of access to modern technology and inadequate knowledge of innovative practices further hinders their adaptability. These factors, combined with climatic influences, have affected the socio-economic conditions of the village, hindering the development and sustainability of the pottery industry. It was clear that the government has not paid special attention to the rural people who are engaged in this profession. Poverty has been intensified by not directing them to alternative careers in the face of Climate change impacts.

4. Conclusions

It was found that the people of Lulneva village in Anuradhapura district have faced a problem in getting the basic raw materials needed for their traditional work due to climate change. It was found that many direct and indirect effects are caused to these people due to climate change. As a result, they should be provided with the necessary technology to maintain their jobs in a climate-resistant manner. Accordingly, there is a need for a technology that can improve the quality and flexibility of clay.

A need for mapping the red clay deposits used by these people as a short-term solution to the shortage of raw materials was evident throughout this study. There was a clear need to gradually

shift the wood-burning stoves used by these people to alternative energy-based stoves at a lower cost. Because the forest land is gradually decreasing, it was possible to identify a level where the effect of further clearing for this could occur in the future. Another unique thing identified in this study is that these people have little knowledge about climate-friendly technology and climate adaptation and resilience. It was further identified through this study that they should successfully adapt to climate change to minimize the effects on them in the future. Further research should be done on this significant impact of climate change on the traditional pottery industry and the community.

Generalizing these findings to the broader context of Sri Lanka's pottery industry, it is evident that the challenges faced by Pottery industry in Lulneva, mirror those encountered in other regions reliant on traditional clay production. Climate change, combined with socio economic and legal constraints, threatens the survival of this ancient craft across the country. A national strategy is needed to support pottery making communities by addressing raw material shortages, promoting sustainable practices, and fostering innovation through government-led initiatives and partnerships with non-governmental organizations.

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Adaptation Challenges to Flooding in Sri Lanka: Special References to Galle District.

H.D.M.T. Pavithrani

Undergraduate, Department of Geography, University of Kelaniya, Kelaniya, Sri Lanka.

maneeshapavithrani10000@gmail.com

1. Introduction

Floods are among the most prevalent natural hazards worldwide, presenting significant threats to communities and infrastructure across various regions (K. L. N. Chathurani et al.). The impact of flooding is particularly severe, making it one of the most critical environmental issues in Sri Lanka. (Fernando et al., 2022).In regions like the Yakkalamulla Divisional Secretariat Division (DSD), where floods occur frequently, the need for effective adaptation strategies is paramount to reduce risks and mitigate the associated socio-economic impacts. This study focuses on the factors contributing to flood hazards in these vulnerable areas, with an emphasis on the socio-economic challenges faced by affected communities in implementing adaptation measures. By examining the underlying causes of flood vulnerability and exploring strategies that enhance resilience and sustainable livelihoods, this research aims to provide insights into effective flood management and adaptation practices that can be applied to mitigate future risks. The findings are particularly relevant to areas with similar vulnerabilities, contributing to the broader understanding of flood risk management in the context of climate change adaptation**.**

2. Materials and methods

In Yakkalamulla Divisional Secretariat, the victims face many challenges in adapting to the flood disaster.(Field survey,2024). The inductive approach was the basis for this research.A mix methods approach was applied to the study. Utilizing both primary and secondary data. First objective is to identify factors affecting to the flood hazard in Yakkalamulla DSD and second objective is to identify the socio-economic challenges faced by victims in adapting to flood. To achieve first and second objectives a questionnaire survey was conducted across 10 affected Grama Niladhari Divisions (GNDs), sampling 60 households and taking sample of 5% of the total affected families in each GND using simple random sampling method. “The areas identified as most severely affected by flooding include Udumalagala, Nakiadeniya North, Yakkalamulla East, 181-A Walpola Pahala, 180B Polpagoda West, 181 Walpala Walpala, 181-B Velendawa, 180-A Beranagoda, 181-C Badungala, and 180-D Kaludiyagala” (Recourses profile, Yakkalamulla DSD,2023). A sample of above 10 Grama Niladhari divisions was used for this analysis. Data were analyzed with Microsoft Excel.

The study area is the Yakkalamulla Divisional Secretariat Division, located in the Galle District of Sri Lanka's Southern Province. It comprises 44 Grama Niladhari divisions. “The coordinates of the Divisional Secretariat are approximately 6°06' north latitude and 80°21' east longitude. Yakkalamulla has an annual temperature range of 23.24°C to 30.0°C, with an average annual rainfall of 419.39 mm. The total population is 51,490, resulting in a population density of 458 people per square kilometer” (Recourses profile, Yakkalamulla DSD,2023).

3. Result and Discussion.

The study analyzed the factors contributing to the occurrence of flood disasters in the area, based on the experiences and perceptions of the local population.

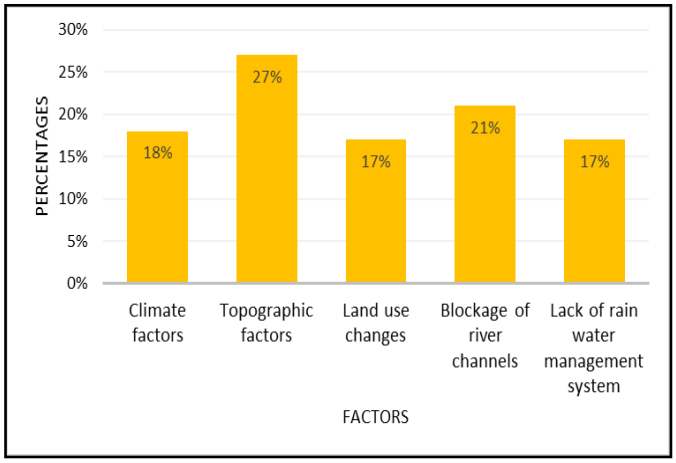


Figure 1: Factors affecting to the flood hazard in the area.
Source; Complied by Author,2024

According to the respondents, topographical features were identified as the most significant factor influencing flooding. Specifically, low-lying areas surrounding the water sources of Pol Watta Ganga and Uduganoya were found to be particularly susceptible to floods. Furthermore, all ten Grama Niladhari divisions with the highest flood frequency in the region are situated within these lowland areas adjacent to the rivers. Land use changes are a significant factor contributing to flooding in the region. Human activities such as deforestation and swamp reclamation have exacerbated flood risks. The absence of an effective rainwater management system has intensified flooding, particularly during the monsoon season. In Yakkalamulla, specifically within the Yakkalamulla East Grama Niladhari division, the primary cause of flooding is the lack of proper infrastructure for rainwater drainage, leading to sudden urban inundation.

Victims face enormous economic challenges in adapting to flood disasters.

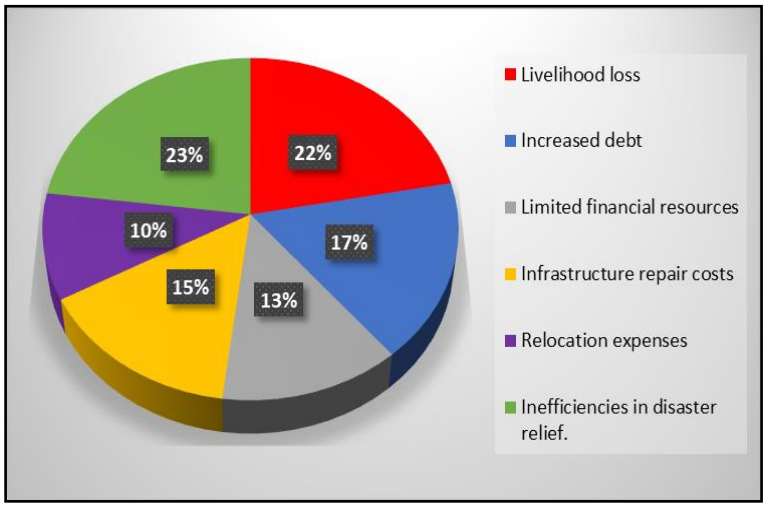


Figure 2: Economic challenges faced by victims in flood disaster adaptation
Source; Complied by Author,2024

The primary economic challenge in adapting to flood disasters in the Yakkalamulla Divisional Secretariat is the loss of livelihoods, with 22% of residents identifying agriculture as their main source of income, which is severely impacted by crop damage following floods. The disruption

to livelihoods increases indebtedness as people recover from economic setbacks. Additionally, 23% of respondents noted minimal government support and highlighted the inefficiency of disaster relief efforts. In adapting to the flood disaster, the victims also have to face various social challenges.

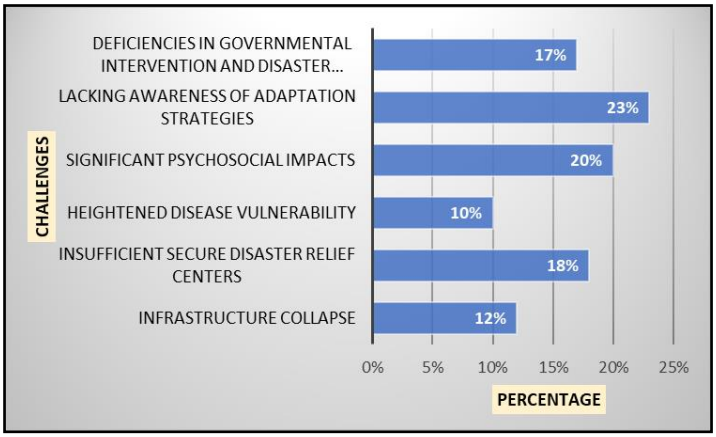


Figure 3: Social challenges faced by victims in flood disaster adaptation
Source; Complied by Author, 2024

A key social challenge in adapting to flood disasters is the low public awareness of adaptation measures. Although new technologies can mitigate flood impacts and manage disaster risk, public awareness remains insufficient. Additionally, 20% of affected individuals report mental health issues as a result of the disaster. Flood-related damages, including the destruction of crops, infrastructure, property, and loss of life, contribute directly to these psychological effects.Eighteen percent of respondents identified the absence of disaster-safe centers as a significant social challenge to flood disaster adaptation. Despite the area's vulnerability to flooding, the lack of such centers complicates disaster response. Providing victims with safe shelters is essential for effective adaptation. Failure to address this issue exacerbates social problems. Implementing appropriate measures can reduce socio-economic challenges and improve flood disaster resilience.

Various measures can be taken to properly manage the disaster by reducing the various socio-economic challenges in adapting to the flood disaster in this area. Measures that can be taken include implementing advanced flood forecasting systems, establishing community-based early warning systems, improving public education on flood adaptation, enhancing infrastructure planning, and comprehensive disaster management strategies. Field surveys reveal a significant gap in public knowledge and preparedness, with many households lacking adequate information and resources for effective flood response. To achieve sustainable adaptation, it is essential to implement targeted measures, strategic plans, programs, and workshops that focus on enhancing public awareness and preparedness. The field survey indicates that the Disaster Management Unit of the Yakkalamulla Divisional Secretariat is ineffective in disaster relief and management. Despite proposing flood mitigation measures, none have been implemented. Government intervention is necessary to enhance flood disaster management and promote adaptation among victims. Strengthening cooperation between local authorities, community groups, and stakeholders is essential for improving adaptation and flood preparedness.

4. Conclusion

To conclude, the prevalence of flood disasters in the Yakkalamulla Divisional Secretariat is heavily impacted by a combination of factors, with topography being particularly influential. Managing the flooding of low-lying areas near the river is essential to prevent widespread

inundation. Integrating the insights from this research into flood mitigation strategies and disaster management plans offers the potential for more sustainable adaptation approaches. Additionally, the study identified several socio-economic barriers that currently impede effective flood adaptation measures. Tackling these challenges is vital for strengthening the resilience of local communities. The recommendations provided in this research present practical steps to mitigate these socio-economic issues, creating a pathway for effective adaptation. By implementing these solutions, the government can ensure a more sustainable adaptation process that not only reduces flood vulnerability but also transforms the region into a safer, disaster-resilient area. Ultimately, these efforts contribute to both disaster risk reduction and long-term sustainable development.

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Assessing Farm-Household Resilience to Food Insecurity Induced by the Drought Hazard in the North Central Province of Sri Lanka

L.M.A.P. Gunawardhana[1], L.M. Dharmasiri[2] and M.M. Ranagalage[3]

[1]*Department of Environmental Management, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka.* pradeeplmap85@gmail.com

[2] *Department of Geography, Faculty of Social Sciences, University of Kelaniya, Sri Lanka.*

[3] *Department of Environmental Management, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka.*

1. Introduction

Drought is one of the recurrent phenomena of most climatic regions of the world, and it is identified as a more complex hazard due to its inherent features than other hazards. Mainly, drought is known as a natural hazard accelerated by rapid climate change. The frequency of occurrence and severity of drought is increasing worldwide (Wilhite, 2021). Providing a universally accepted definition for drought is impossible because the meaning of drought may differ from region to region and person to person (Wilhite, 2021). However, drought can be defined as a lack of precipitation or rainfall within a considerable time a season or more. Drought is defined conceptual and operationally, and more often, researchers accepted four types of operational droughts, i.e., Meteorological, Agricultural, Hydrological, and Socioeconomic or Famine (Kchouk et al.,2021).Drought creates diverse socio-economic and environmental impacts. Food insecurity caused by agricultural drought is the worst result, particularly among farming communities that depend on rain-fed agriculture in many developing countries of the World and South Asia(Chandrasekara et al., 2021).

Sri Lanka is one of the tropical countries that is highly vulnerable to drought, and once every 3-4 years, a severe drought occurs(Prasanna, 2018). Though drought frequency and severity have increased, drought is not new to Sri Lanka because there is evidence of drought occurrence since ancient times (Madduma Bandara, 2017). For example, the most severe drought occurred in 2016-2017 when 24 districts were affected by drought and 1,116,178 families and 3,944,176 persons became victims, and the government had to spend more than 6500 million rupees for distributing drought relief (National Disaster Relief Services Centre, 2017). Many research findings have highlighted that farming communities in the Dry Zone area are more vulnerable to drought, mainly minor irrigation and rain-fed farmers, than major irrigation farmer(Scarborough & Senaratne,2011).Much research has been conducted on drought, focusing on different aspects, such as farmers' perception, adaptation strategies, understanding of drought occurrence and severity, etc.(Madduma Bandara, 1983; Tennakoon, 1986). Though there is a plethora of research, drought research on farmers' household resilience to food insecurity is very limited in Sri Lanka. Hence, this research attempted to analyze whether there is a variation in farmers' household resilience to food insecurity among farming communities in the North Central Province (NCP) of Sri Lanka.

2. Materials and Methods

A mixed method was adopted for this research, and primary and secondary data were collected. The main instrument of primary data collection was a questionnaire survey, and secondary data was collected from different sources such as articles, Divisional Secretariats, and Agrarian Services Centers in the NCP. The total population was 3163 farming households, and 356 were selected as the sample using Slovin's Formula from three Divisional Secretaries Divisions (DSDs), i.e., Mahawilachchiya (120), Kahatagasdigiliya (109) and Medirigiriya (127). The stratified random sampling method was utilized to select farming households, and computer-based software was used to select the sample randomly. The Household Food Security Index (HFSI) was used to calculate the resilience level of the three selected farming communities of

the NCP. The questionnaire was designed to meet the requirements of HFSI after an extensive literature review where 14 questions were included to obtain Yes and No answers. Then, the answers were translated into numerical values of Yes=1 and No=0, and then MS Excel was used to calculate the HFSI values. There are four categories of HFSI, i.e., 0-11(Food Secure), 11-33 (Food insecure but no hunger),33-60(Food insecure but less severe), and 60-100(Extremely Food Insecure) (Gunatilake, 2015). Further, one-way ANOVA was performed to test the statistical significance of variation in food insecurity among the three selected farming communities. Finally, the results were presented as text, tables, and charts.

3. Results and Discussion

Table 1 shows the farmers' perception of household resilience, where most farmers (34.6%) agreed that their household resilience is very low. Also, 29.2%, 31.5%, 4.5%, and 0.3% belong to low, moderate, high, and very high categories of resilience, respectively. When comparing the three areas, i.e., Mahawilachchiya, Kahatagasdigilya, and Medirigiriya area, table 1 highlights that Mahawilachchiya, Medirigiriya, and Kahatagasdigilya have become first, second, and third places in terms of drought resilience. Most farmers in the Mahawilachchiya area agree with the very low category (17.4%). In comparison, most farmers in the Kahatagasdigilya (13.8%) and Medirigiriya (12.1%) agreed with moderate resilience. However, farmers in all three areas agreed with the high and very high resilience category of less than 5%. Therefore, according to the perception of farmers, household resilience to drought impacts is very low.

Table 1: Farmers' perception of the level of household resilience to drought impacts

Level of Resilience	Divisional Secretariate Name							
	Mahawilachchiya		Kahatagasdigiliya		Medirigiriya		Total	
	Count	%	Count	%	Count	%	Count	%
Very Low	62	17.4%	21	5.9%	40	11.2%	123	34.6%
Low	35	9.8%	33	9.3%	36	10.1%	104	29.2%
Moderate	20	5.6%	49	13.8%	43	12.1%	112	31.5%
High	2	0.6%	6	1.7%	8	2.2%	16	4.5%
Very High	1	0.3%	0	0.0%	0	0.0%	1	0.3%
Total	120	33.7%	109	30.6%	127	35.7%	356	100.0%

Source: Created by the researcher based on field survey data 2023.

Figure 1 shows the results of the Household Food Security Index (HFSI), where HFSI considers the availability of both quality and quantity of essential food even during drought periods for all individual members of the family. According to results, only 6% of farming households in the Kahatagasdigilya area belong to the food secure category of HFSI, i.e., there is enough quality and quantity of food for all members of the family even during a drought period, but there is no household in Mahawilachchiya and Medirigiriya areas. Most farming households (47%) in Kahatagasdigilya belong to the second category of HFSI. It means food insecurity regarding quality and quantity for all family members, especially during drought, but no hunger. Most farming households in Mahawilachchiya (58%) and Medirigiriya (55%) belong to the third category of HFSI, i.e., food insecure but less severe in terms of quality and quantity. The worst category of HFSI is the fourth category or extremely food insecure, where 25%, 15%, and 7% of farming households belong to Mahawilachchiya, Medirigiriya, and Kahatagasdigilya, respectively. Therefore, when comparing the three selected areas according to the results of the HFSI, it was found that farming households in Kahatagasdigilya, Medirigiriya, and Mahawilachchiya areas have become first, second, and third places in terms of household resilience to food insecurity. Further, a one-way ANOVA test proved that there is a statistically significant variation in household food security among three farming

communities of the NCP (P=.000). Socio-economic and environmental factors and the variation in the way of agricultural practices may be the reasons for creating variation in food security among farming communities of the NCP. Further, it was found that the farmers in the NCP are using multiple coping and adaptation strategies to mitigate drought's adverse impacts, mainly to cope with food insecurity.

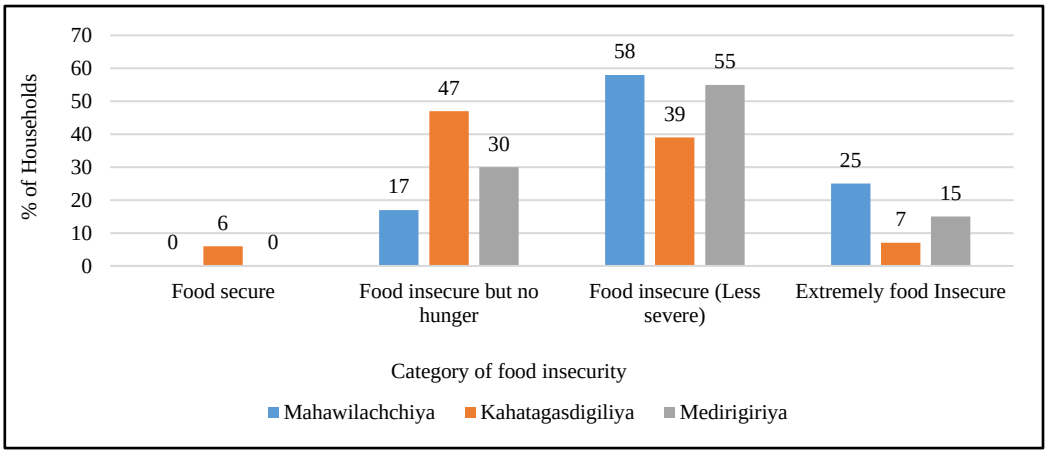


Figure 1: Variation in household food insecurity among the three selected farming communities. Source: Created by the researcher based on field survey data 2023.

4. Conclusion

Drought is a significant complex hazard that frequently occurs in the NCP of Sri Lanka. Rural communities are most vulnerable to drought, particularly farmers practicing agriculture, i.e., paddy and other seasonal crops under minor irrigation or small village tanks and rain-fed. Food insecurity is the worst result created by drought, and there is a variation in household food insecurity among farming communities of the NCP, and their level of resilience to food insecurity is low. Farmers are using both on-farm and off-farm coping strategies to reduce drought impacts. The government has to spend much money to distribute drought relief, but there is no sustainable solution for mitigating the impacts of drought for an extended period. Hence, the government and other relevant stakeholders should shift from reactive to proactive approaches. It is time to implement a sustainable drought risk management plan to avoid household food insecurity among the farming communities of the NCP where restoration of the village tank cascade system and the introduction of climate-smart agriculture are significant in mitigating the adverse impacts of drought in the NCP. The results of this study will help planners and policymakers when making practical decisions related to enhancing the resilience of farming households to food insecurity of the NCP.

5. Acknowledgment

The authors would like to thank both the Rajarata University of Sri Lanka and the University of Kelaniya for their generous support.

6. Keywords

Drought Hazard, Farm-Household Resilience, Food Insecurity, Household Food Security Index.

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Assessing tourism suitability through the Tourism Climate Index in Kandy, Sri Lanka

L.P.S.D.N. Wijerathna[1] and U.S. Meegahakotuwa[2]

[1]*Department of Geography, University of Peradeniya, Peradeniya, Sri Lanka.* wijerathna1972@gmail.com

[2]*Jinaraja Girl's College,Gampola Education Zone, Central Province, Sri Lanka.*

1. Introduction

Climate is one of the physical sources extremely affected not only for thinking of human beings but also the behaviour and activities of all living being in the world (Eludoyin, 2013). Climate has a strong influence on the tourism and recreation sectors (Daniel & Geoff Mc, 2001). Therefore, the climate is directly and significantly influenced to the tourists' decision-making processes, influencing where and when tourists' travel, as well as the associated distribution of tourism expenditures (Daniel, Michelle, et al., 2016). Wilton and Wirjanto (1998) estimated that, if a 1oC above normal summer temperature increases, domestic tourism expenditures will increase by approximately 4% in Canada. It seems to be that, tourism has become one of the largest economic sectors in the world and is a significant contributor to many national and local economies. Tourism climate indices (TCI) are commonly used to describe the climate conditions suitability for tourism industry, from the planning, investment or daily operations perspectives. As a tourism destination, Sri Lanka can compete successfully with other destinations partly because of its pivotal geographical position (Fernando, 2017). It is determined by special and unique climatic condition in the country. But today Sri Lanka also faced in a stressful situation on heat stress in some period (Srimalee & Rekha, 2017) and those climatic changes are directly influence to change the tourist destinations in the country also. But analysis of TCI in Sri Lanka is limited in to certain framework and it seems to be a kind of shortcoming in a climatological research sector in the county.

In this study Kandy is selected as a study area of the research, which is situated in the Central Highland of Sri Lanka by giving much attraction to the tourist activities in the county. The main objective of this study was find out the tourism climate comfortable period of Kandy, using tourism climate index (TCI) introduced by Mieczkowski in 1985 (Crowe, 1976). Here the whole study mainly based on the highly accurate indexes. These indices represent a quantitative evaluation of world climate for the purposes of international tourism. A series of rating systems is developed to provide a systematic basis for assessing the climatic elements that most affect the quality of the tourism experience. This would be very useful for future studies in Sri Lanka, and it will also be helpful for planning and making policies for various sectors of the development of the country. Thus, this field of study might be a turning point in Sri Lankan tourism industry.

2. Materials and Methods

Details about comfort levels of remaining climatic condition are provided for a tourist activity by TCI. This index for the first time was introduced one of the famous Geographer Mieczkowski in 1985. 7 main climatic variables have been used to calculate TCI by him. They were maximum daily temperature, minimum daily relative humidity, mean daily temperature, mean daily relative humidity, rainfall, sunshine hours and wind speed. For this study 14 years' data has been collected from Katugasthota and Gannoruwa agro meteorological station in Sri Lanka during the period 2008 to 2022.

$$TCI = (2(4CID + CIA + 2R + 2S + w)) \quad [1]$$

where, CID = Day Time Comfort Index
CIA = Daily Comfort Index
R = Rainfall
S = Sunshine Hours
W = Wind Speed

$$ET = Temperature - 0.4*(Tem-10))*(1-Humidity/100)$$

Where, ET= Effective Temperature

Basically, temperature and relative humidity are used to calculate the CID and CIA sub-indexes. Tourist outdoor activities mostly can be seen in the day time. Therefore, Maximum daily temperature (^oC) and minimum daily relative humidity (%) have been used for CID calculation. ET value also necessary to calculate. There are number of ways to calculate the Effective Temperature. In the meantime, the equation (2) has been used to calculate the ET. To get the maximum rating scales for CID and CIA, the ET value should be in between 22^oC and 26^oC. When ET value is below 20^oC or above 26^oC, the rating scale gradually comes down.

3. Results and Discussion

Kandy is a city in the hill country of the Central Province in Sri Lanka. It is known for its temperate, humid warm climate, area in Sri Lanka. Due to its highland location (western slope of the central highland), and monsoon rainfall pattern, Kandy has a highland wet zone climate (Koppen climate classification Am), having no pronounced dry season, a monsoon-like Rainy season and with a mean annual temperature of 25.2 °C. (77.4 °F).

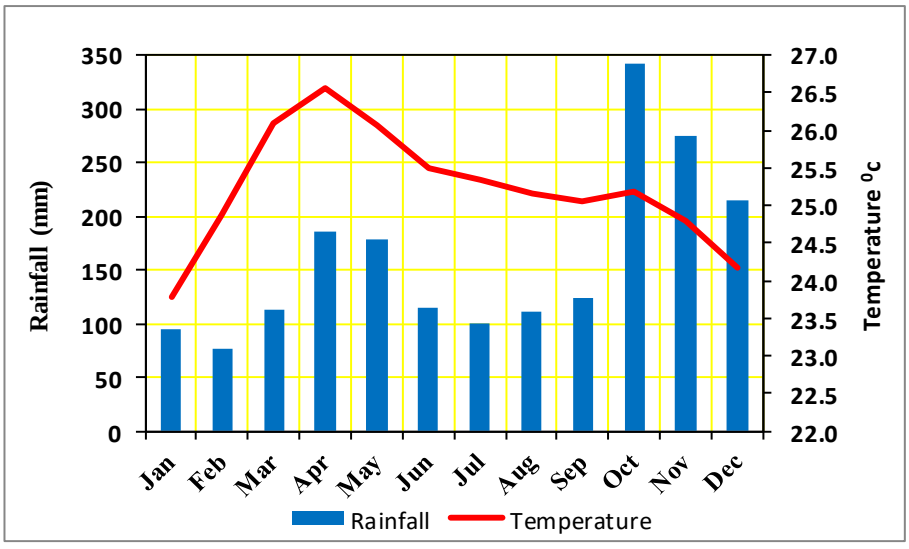


Figure 1: Monthly distribution pattern of rainfall (mm) and temperature (^oC) Kandy (2008 - 2022)

During the First Inter Monsoon (FIM) period (March to April) the sun located as an overhead to Sri Lanka and the maximum temperature goes up rapidly . April is recognize as the hottest month in the year. During the Period of Second Inter Monsoon (SIM) (October to November), more than 250mm rainfall can be observed in the station (Figure 1). In this period, ITCZ situated again over Sri Lanka. Because of that, in the evening or later part of the day, rainfall is experienced with thunder and lightning. The cyclone conditions are also reported in this period. When the rainfall is rising up ward, temperature has gone down. However there is comfortable climatic environment for tourist activities can be seen in Kandy and its surround

areas in the central hills. According to TC index always Kandy belongs to very good and good categories.

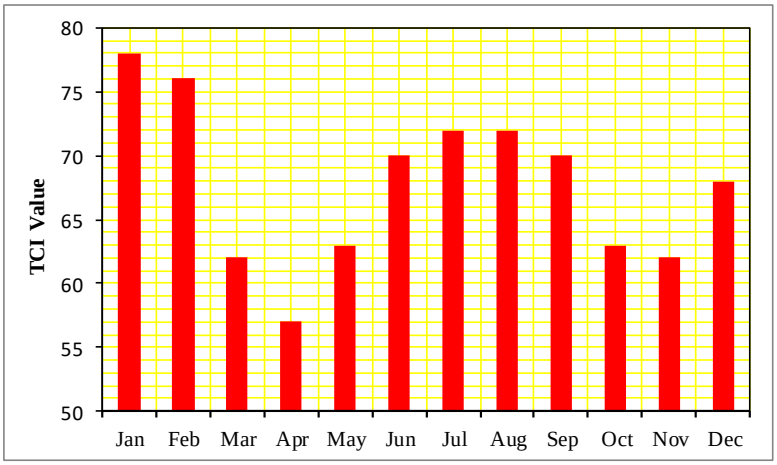


Figure 2: Monthly distribution pattern of Tourism Climate Index (TCI) in Kandy with comfortable categories (2008 - 2022)

Table 01: tourists destination categorized in term of TCI Score

TCI Score	CATOGARY
30 - 39	Unfavourable
40 – 49	Marginal
50 – 59	Acceptable
60 – 69	Good
70 – 79	Very Good
80 – 89	Excellent
90 – 100	Ideal

The results indicated that the TCI varies from acceptable to very good category in Kandy. January is the most favourable month for tourism and the highest value of TCI (73: very good) has been recorded in this month. January and February (71: very good) have most favourable tourism climate comfortable period due to pleasantly warm temperature , clear sky, low rainfall, and long sunshine hours. In contrast, the months of April (54: Acceptable) and may (58: Acceptable) have lowest favourable tourism climate comfortable period due to high humidity within high temperature(humid and warm) and unfavourable rainfall. October (56: Acceptable) also had the lowest comfortable condition due to high rainfall and low sunshine hours (figure 2). season wise, the northeast monsoon brought a comfortable climatic environment for tourist activities due to substantial values obtained by the CID and CIA.The first intermonsoon and second intermonsoon have the lowest (acceptable) comfortable climate environment for tourist activities in Kandy.

The sun is exactly about the equator (vernal equinox, March 21) in the first intermonsoon, and the highest temperature is recorded in that period by the effect it receives. Therefore, its make unfavourable climate condition for tourist activities. The second intermonsoon season also has the least comfortable climate conditions for tourist activities due to the unfavourable rainfall and low sunshine hours. Thus this study confirmed that January to February is the most comfortable period of the year for tourism in Kandy, Sri Lanka.

4. Conclusion

As far as it is concerned Sri Lanka is a very good and comfortable and favourable country for tourist destination. Kandy is one of the famous tourist attractive places in the country. Climatic condition and speciality of the situation are crating unique beauty in the land and it gives

uncountable tourist value to the area. When the monthly TCI concern in Kandy district, there are no any unfavourable season or month lower than 30-39 category of TCI. All values are recording up to Acceptable category and the TC index of Kandy is always belonging to very good and good categories. It was clearly observed on monthly, seasonally and annually basis the TCI concern Kandy is one of the most suitable and comfortable tourism destination city in the world. Furthermore, Applying the Tourism Climate Index to the entire country of Sri Lanka, as well as developing a map of spatiotemporal comfortable tourism climate places and seasons, will help the tourism sector in Sri Lanka thrive sustainably.

5. Keywords

Tourism Climate Index, comfortable, Northeast monsoon, Inter monsoon

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Association between Indoor Carbon Dioxide (Co_2) Concentration and Respiratory Symptoms among University Students: A case study from Rajarata University of Sri Lanka

Nelka Sandali Wijekoon and Samali Ayoma Marasinghe

Department of Environmental Management, Faculty of Social Sciences & Humanities, Rajarata University of Sri Lanka. samalimarasinghe@yahoo.com

1. Introduction

Indoor Air Quality (IAQ) is widely acknowledged as essential for human health (UKIEG, 2017), particularly given that individuals spend the majority of their time indoors. (Tsantaki *et al*., 2020) The rising levels of indoor pollution have made poor IAQ a significant global health issue.

Carbon dioxide has emerged as one of the main indoor air pollutants (Satish et al., 2012), contributing to significant health concerns worldwide. Elevated indoor CO_2 levels have been linked to various respiratory and cognitive health problems (Alaa et al., 2022) (Erdmann et al., 2002), making it a growing global health issue. Numerous researchers have consistently highlighted the significance of indoor air quality (IAQ) for human health. (Orecchio *et al*., 2017) Many studies report a relationship between indoor CO_2 concentrations and health outcomes. (Seppanen, O.A., Fisk, W.J., and Mendell, 1999). Outdoor CO_2 levels typically range from 300 to 400 ppm, but in urban areas, this can rise to 600- 900 ppm. Indoor levels vary based on building location and ventilation. (OSHA, 2010). While a concentration of 350 ppm supports a healthy lifestyle (Bandaranayake *et al*., 2020), indoor CO_2 levels are projected to reach 700 ppm by 2050. (Bandaranayake *et al*., 2020). Though CO_2 is essential for physiological balance, elevated concentrations can lead to respiratory symptoms. (Bandaranayake *et al*., 2020) For instance, Huang *et al*. found increased childhood asthma risk due to higher indoor CO_2 levels. (Naydenov *et al*., 2008) Prolonged exposure to oxygen-depleted air caused by excessive CO_2 can result in suffocation. (OSHA, 2010) CO_2 concentrations have long been used as indicators of IAQ (Persily,2022) with rising levels directly linked to respiratory symptoms (Krismanuel, 2024).

Students often lack awareness of the connection between indoor CO_2 concentration and respiratory symptoms, a crucial factor influencing indoor air quality (IAQ). Elevated CO_2 levels, typically caused by poor ventilation, high occupancy and various indoor activities, can lead to respiratory issues, negatively impacting both health and academic performance. This study focuses on Rajarata University, located in Sri Lanka's dry zone, with a student population of 7,353 as of 2019. Given the increasing number of students and challenges in dormitory allocation, each dormitory room accommodates more than four students. Despite extensive global research on indoor CO_2 concentrations, there is a noticeable lack of studies focused on university dormitories in Sri Lanka. Previous research in the country has primarily addressed indoor CO_2 levels in environments such as lecture halls (Jayasooriya *et al*., 2020) and urban settings (Bandaranayake *et al*., 2020), leaving a significant gap in understanding CO_2 levels and their impact in residential settings like dormitories. This study aims to bridge this gap by exploring the relationship between indoor CO_2 concentrations and respiratory symptoms among university dormitory residents in Sri Lanka.

2. Materials and Methods

The study was conducted in the dormitories of Rajarata University of Sri Lanka and consisted of two phases: Phase I- a cross-sectional study and Phase II- case-control study.

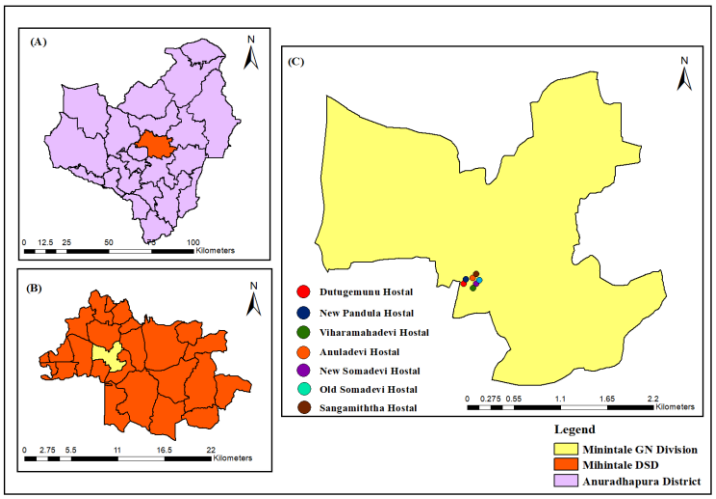


Figure 1: Study area-Dormitories in Rajarata University of Sri Lanka

In the first phase, multi stage cluster analysis was employed to gather data on the dormitory environment and respiratory conditions of students. Seven dormitory buildings were randomly selected from a total of 14, and 502 rooms were chosen from 698. A total of 2,956 students were surveyed with 2,234 completing the questionnaire, yielding a response rate of 76%. (Ayoma *et al*., 2024) Data collection took place in May 2020.

This study examined respiratory symptoms, including wheezing (ever and current), doctor-diagnosed asthma, rhinitis (ever and current), and doctor-diagnosed rhinitis. Phase II, a nested case-control study, recruited students from the cross-sectional study who reported at least two respiratory symptoms (doctor-diagnosed asthma, current wheezing, or current rhinitis) identified through phase I questionnaires. A total of 190 symptomatic students and 198 healthy controls (without asthma or allergic symptoms) were selected. These students occupied 245 rooms, where environmental measurements and observations were conducted.

Descriptive statistics were used to present basic information. Variances in frequencies and distributions were analyzed using the chi-square test, while CO_2 levels were assessed using the Mann-Whitney U test. Logistic regression was employed to calculate odds ratios with 95% confidence intervals. Data analysis was performed using STATA 16 and SPSS 21 software. Ethical clearance was obtained from the Faculty of Medicine and Allied Sciences at Rajarata University of Sri Lanka.

3. Result and Discussion

Sri Lanka's tropical climate is characterized by year-round warmth and significant precipitation. This study measured indoor environmental parameters, including CO_2 concentration, in the university dormitories of Rajarata University. The average CO_2 concentration recorded was 1160 ppm, which exceeds the recommended indoor air quality standards. Elevated CO_2 levels, especially at night, were linked to inadequate ventilation and high occupancy rates, factors contributing to poor indoor air quality. These findings underscore the need for improved ventilation in dormitory settings to reduce health risks associated with high CO_2 levels. In a similar study, CO_2 concentrations were observed to range from 1011 ppm in rooms with three occupants to 1483 ppm in rooms with six occupants during the hot season when windows and doors remained closed at night. (Sun *et al*., 2011) The elevated CO_2 levels were attributed to high occupancy rates, which likely contributed to insufficient ventilation in these enclosed spaces. (Marasinghe & Sun, 2021) These findings suggest that high indoor CO_2 concentrations are closely associated with the number of occupants and the lack of proper airflow.

Considering the indoor CO_2 levels in the rooms of students with and without allergies at the dormitories of Rajarata University, the study found significant associations between CO_2 concentrations and respiratory conditions such as asthma and rhinitis. Higher CO_2 levels were notably linked to an increased risk of asthma (AOR: 2.22) and rhinitis (AOR: 2.11) among the student population. This study observed a significant correlation between median CO_2 concentrations and asthma and rhinitis. Also, students with asthma and rhinitis had significantly higher CO_2 concentrations in the room than those without asthma and rhinitis symptoms. In a similar study, European countries conducted in the group of school children's exposure to CO_2 levels found that >1000 ppm showed a significant risk for rhinitis. (Simoni *et al*., 2010) These findings underscore the importance of controlling indoor CO_2 concentrations to mitigate respiratory health risks in similar environments.

4. Conclusion

In conclusion, this study revealed a significant association between elevated indoor CO_2 concentrations and increased risks of asthma and rhinitis among students in the dormitories of Rajarata University. Higher CO_2 levels, particularly during night-time, were identified as a key factor contributing to respiratory health issues. These findings emphasize the importance of improving ventilation systems and monitoring CO_2 levels in indoor environments to mitigate the risk of respiratory conditions, especially in densely occupied spaces such as university dormitories. Addressing these factors is crucial for promoting better indoor air quality and students' health.

5. Keywords

carbon dioxide, dormitories, indoor air quality, respiratory symptoms

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Indoor Air Quality Assessment in Sri Lankan University Dormitories: A Case Study of On-Site Measurements and Inspections at Rajarata University

Samali Ayoma Marasinghe

Department of Environmental Management, Rajarata University of Sri Lanka, Mihinthale.
marasinghe@ssh.rjt.ac.lk

1. Introduction

Research has consistently demonstrated that indoor air quality (IAQ) poses significant concerns for human health (Dales et al., 2008), largely because people typically spend between 80% and 90% of their time indoors (Borràs-santos et al., 2013) Prolonged exposure to indoor environments makes individuals vulnerable to various factors influencing IAQ, including physical, chemical, and biological (Dales et al., 2008).

The literature frequently highlights the health risks associated with poor IAQ (World Health Organization, 2018) with particular emphasis on particulate matter exposure (Huang et al., 2016) and the effects of environmental factors like CO_2 levels, temperature, and humidity in residential settings (Sun et al., 2019). Despite substantial research into the harmful effects of indoor pollutants, significant gaps remain, especially in the context of Sri Lanka. The use of modern building materials and chemicals in cleaning products has contributed to rising indoor air pollution. Moreover, contemporary building designs often result in inadequate ventilation, leading to the accumulation of indoor pollutants (Sun et al., 2019), further emphasizing the need for a thorough IAQ assessment and management strategy.

Although many studies have extensively investigated IAQ (Wierzbicka et al., 2018) comprehensive on-site evaluations of indoor air quality in Sri Lankan university dormitories are still scarce. This study aimed to fill that gap by conducting a detailed assessment of IAQ in Sri Lankan university dormitories through systematic on-site measurements and observations.

2. Materials and Methods

Phase I

The Sri Lankan Student Health (SLSH) study was conducted in two phases. Phase I involved a cross-sectional questionnaire study, using multi-stage cluster sampling to collect self-reported data on student health and dormitory conditions. Seven buildings were selected using stratified random sampling from a total of 14, with 502 rooms chosen at random. A total of 2,956 students were invited to participate. The questionnaire, adapted to Sri Lankan socio-economic conditions, and environment. Students had two days to complete and return the forms, and the survey was conducted in May 2020.

Phase II

Phase II of the study was a nested case-control study involving students from the cross-sectional survey. Students with at least two symptoms doctor-diagnosed asthma, current wheeze, or current rhinitis were selected as cases (190 students), while 198 healthy students with no asthma or allergy symptoms were chosen as controls. In total, 245 dormitory rooms were inspected. Inspectors, unaware of the students' health conditions, measured indoor environmental factors like temperature, CO_2, humidity, formaldehyde, $PM_{2.5}$, and PM_{10}. The dormitories, located in rural areas, were naturally ventilated, with louvers on windows, and common kitchen facilities were used by students for cooking.

Measured environmental parameters in the university dormitories.

In August 2020, environmental measurements were conducted in university dormitory rooms, focusing on physical parameters such as temperature, relative humidity (RH), and carbon dioxide (CO_2). These were measured continuously over 24 hours using highly accurate monitors. Additional pollutants, including $PM_{2.5}$, PM_{10}, and formaldehyde, were also recorded. Data collection spanned two seasons. CO_2 sensors were calibrated with a 1-minute sample interval, and monitors were positioned centrally in the rooms. Formaldehyde and particulate matter were measured for 5 minutes using portable instruments, ensuring readings were unaffected by nearby vents or heat sources. The study used the CO_2 tracer gas method to measure the air change rate (ACR) in dormitory rooms. This method has been employed in prior studies for similar analyses (Sun et al., 2024).

3. Results and Discussion

Results

In Phase I of the study, 2,234 students participated, achieving a 76% response rate. Conducted in May 2020, the survey revealed that 71.4% of respondents were female. Around 11% of students reported a family history of allergies, and 60.1% came from families with a monthly income exceeding 14,000 SLR. The findings show that 91.5% of the dormitory buildings were less than 10 years old, and 10% were single-story buildings. Nearly 61% of students used natural ventilation by opening windows.

Sri Lanka, a tropical region, experiences consistent warmth and sunshine, with rainfall being the main climatic variation. Measurements in the dormitories at Rajarata University included temperature, humidity, CO_2 concentration, air change rate (ACR), $PM_{2.5}$, PM_{10}, and formaldehyde. The median indoor temperature was 28.3°C, with 81.2% humidity. Nighttime CO_2 concentration was 1160 ppm, and the ACR was 0.86 h^{-1}. $PM_{2.5}$, PM_{10}, and formaldehyde levels were all within national limits (Table 1).

Table 1: Median distribution of the measured indoor environmental parameters in the dormitory of the Rajarata University of Sri Lanka

Parameters	N	Min.	25th percentile	50th percentile	75th percentile	Max.
Physical environmental parameters						
Temperature for 24 h[a] (°C)	245	25.2	27.6	28.3	28.8	30.7
RH for 24 h[a] (%)	245	68.6	77.7	81.2	85.9	97.2
CO_2 at night time[b] (ppm)	245	521	1047	1160	1360	2283
ACR at night time[b] (h^{-1})	245	0.43	0.70	0.86	1.08	3.20
Chemical, environmental parameter [c]						
$PM_{2.5}$ ($\mu g/m^3$)	245	10	13	15	16	35
PM_{10} ($\mu g/m^3$)	245	13	16	17	20	48
Formaldehyde (mg/m^3)	245	0.01	0.02	0.03	0.06	0.59

[a] 24 hour, [b]Night time 0.00- 07.00, [c]For 5 minutes.

Discussion

The evaluation of indoor air quality (IAQ) in the student dormitories at Rajarata University of Sri Lanka reveals several environmental issues, especially when compared to both national and international standards. The average CO_2 concentration exceeds the recommended thresholds, which typically advise levels below 1000 ppm, suggesting inadequate ventilation and potential overcrowding (Sun et al., 2011). This high concentration indicates a need for better ventilation systems and reduced room occupancy. A study in Tianjin, China, similarly found elevated CO_2 levels (1011-1483 ppm) in dormitories during the heating season with closed windows, which aligns with the results of this study (Sun et al., 2011).

The measured relative humidity (81.3%) also exceeds the upper limit of the Chinese national standard, raising concerns about mold growth and other humidity-related health problems (Sun et al., 2011). While the temperature is within acceptable ranges, the levels of particulate matter ($PM_{2.5}$ and PM_{10}) and formaldehyde are comfortably below the permissible limits, suggesting that the air is relatively free from common pollutants typically linked to respiratory issues. Previous studies conducted in Colombo, Sri Lanka, have reported higher levels of indoor $PM_{2.5}$ concentration than our study (Nandasena, and Wickremasinghe, 2011; Ranasinghe et al., 2015). For example, research in Colombo and Panadura monitored indoor $PM_{2.5}$ in 198 homes and found higher levels, especially in households that used biomass for cooking, with $PM_{2.5}$ concentrations exceeding WHO standards (50 $\mu g/m^3$) (Nandasena, and Wickremasinghe, 2011). Another study found average $PM_{2.5}$ levels of 143.7 $\mu g/m^3$ in the Colombo area (Ranasinghe et al., 2015). Studies conducted across several Asian countries have reported higher indoor $PM_{2.5}$ levels, such as 137 $\mu g/m^3$ in a study across seven region and 61 $\mu g/m^3$ in a study conducted in Shanghai, China (Lee et al., 2010). However, the lower $PM_{2.5}$ levels observed in this study are likely due to the rural setting, fewer industries, low urbanization, and the university policy prohibiting cooking inside the dormitories. Furthermore, cultural factors, such as the low smoking rates among Sri Lankan women and students (7.9%), also contribute to the lower $PM_{2.5}$ concentrations.

4. Conclusion

These results highlight the indoor air quality (IAQ) conditions in the student dormitories at Rajarata University of Sri Lanka. The study revealed that while most IAQ parameters, such as particulate matter ($PM_{2.5}$ and PM_{10}) and formaldehyde, remained within acceptable limits, the average CO_2 concentration significantly exceeded both national and international standards. This indicates an urgent need for targeted interventions to improve ventilation and air exchange rates in the dormitories. The findings underscore the importance of regular IAQ monitoring and the implementation of corrective measures to align with global health and safety standards, ensuring a healthier indoor environment for students.

5. Acknowledgment

The authors thank the students of Rajarata University and the RUSL staff for their essential participation and support in completing the study.

6. Key Words

Carban Dioxide (CO_2), Formaldehyde, Indoor Environment, Temperature.

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Reviewing Disaster Management System of Sri Lanka focusing mitigation of impacts related to Floods and Landslides

T.M.I.L. Thennakoon[1] and S.B.D. Samarasinghe[2]

[1] *Sri Lanka Military Academy, Kothalawala Defense University.* isurulthennakoon@gmail.com

[2] *Department of Town and Country Planning, University of Moratuwa.*

1. Introduction

Natural disasters have been on the rise, particularly in vulnerable regions like Sri Lanka, which faces seasonal monsoons, floods, and landslides. Despite efforts to strengthen disaster preparedness after events like the 2004 tsunami, the existing response mechanisms are often inadequate for handling frequent natural calamities. Recent incidents, such as the 2016 and 2017 floods, have exposed weaknesses in Sri Lanka's disaster management infrastructure, highlighting the need for enhanced preparedness, coordination, and timely response. Developing countries, especially in Asia, encounter resource constraints that hinder effective disaster management. This study aims to assess the current disaster management system in Sri Lanka with a focus on preparedness for floods and landslides. The main objectives are: To determine the frequency and impact of hazards, particularly floods and landslides, to evaluate the present state of disaster management and preparedness in Sri Lanka and to identify key issues and gaps within the current disaster management system.This research seeks to provide insights into building a more resilient and responsive disaster management system, potentially informing policy adjustments and resource allocation.

2. Materials and Methods

This research employs both primary and secondary data collection methods to comprehensively examine disaster preparedness in Sri Lanka. The methodology centers on the disaster management system, particularly focusing on the preparedness phase, which is crucial yet often underrepresented in disaster management studies. Secondary data, sourced from academic journals, government publications, news outlets, books, and past research, provides a broad understanding of the disaster management cycle and insights from existing literature. This phase of data collection enhances understanding of critical disaster management phases, such as mitigation, response, recovery, and preparedness, specifically highlighting how Sri Lanka's institutions operate within these phases.

To deepen the analysis, the research identifies and studies key institutions in Sri Lanka's disaster management framework, particularly those active in preparedness. Observing these institutions' roles, relationships, and challenges within the preparedness phase reveals gaps and potential areas for improvement. Recognizing the complex, cyclic nature of disaster management across different countries, the study focuses on the unique context of Sri Lanka, analyzing how prompt information-sharing and institutional support are crucial in minimizing disaster impacts. Based on findings, the research provides recommendations to strengthen the preparedness phase in Sri Lanka, proposing strategies for more robust disaster management to mitigate future risks effectively.

3. Results and Discussion

When considering the first objective Sri Lanka been an island in the Indian Ocean is mostly vulnerable for natural disasters. To take an overall idea regarding the disasters in Sri Lanka it's very important to study the frequency of natural disasters in Sri Lanka. According to Figure 02, highest damage happen because of the drought in Sri Lanka. Then second highest number of affected people were reported from flood in Sri Lanka. That value got as 14445496.Then

second and third highest values were shown the disaster happen by cyclone and Tsunami. That vales get sequent 1369376 and 1076240. In this study mainly focus about flood and landslides. Number of Affected people by landslide was 288908.

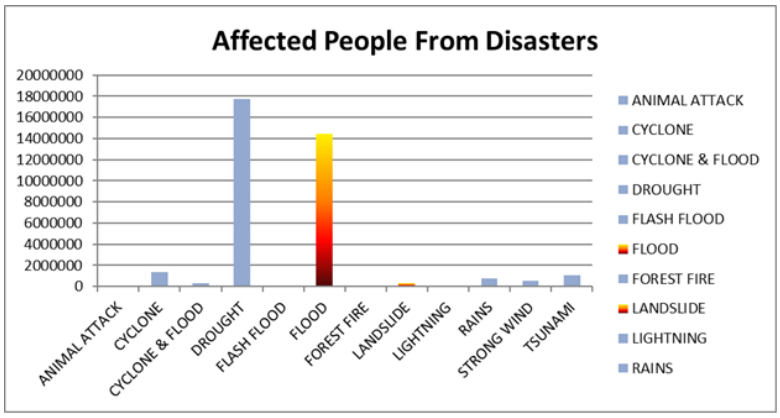


Figure 01: Number of affected people in 1965-2017 from all Sri Lankan disasters
Source: Disaster management center

To evaluate the current state of disaster management and preparedness in Sri Lanka and identify key issues and gaps, this study focuses on the impact of natural disasters, particularly floods and landslides, on human lives and property. Floods and landslides are common and devastating in Sri Lanka, exacerbated by the country's river basins and increasing urbanization without proper drainage systems. Key flood-prone districts include Kegalle, Ratnapura, Kalutara, Colombo, Gampaha, and Galle during the Southwest monsoon, while Ampara, Trincomalee, and Batticaloa are vulnerable during the Northeast monsoon (Disaster Management System, 2013). Landslides, especially in mountainous regions like Kandy, Ratnapura, and Nuwara Eliya, have increased due to deforestation, unplanned land use, and changing land practices (Gunathilaka, 2015). Factors such as tobacco cultivation, land clearing, and reservoir construction have further raised landslide risks (Herath, 2016).

Data shows that during 2016-2017, there was a significant increase in deaths, missing persons, and injuries, with the highest death toll in 2017 (67), and the most missing persons in 2016 (117) (Center, 2011). Injuries peaked in 2006 with 57 people injured, followed by 28 in 2007 (Gunathilaka, n.d.). Landslides have caused substantial damage to homes, with the most damage recorded in 2006-2007 and 2016-2017. The highest number of damaged houses (2,018) occurred in 2006, while 495 houses were destroyed in 2007 (Disaster Management, n.d.).

Sri Lanka's disaster management framework includes the National Council for Disaster Management (NCDM), which formulates disaster policies, and the Ministry of Disaster Management, which coordinates responses through various agencies like the Department of Meteorology and the National Building Research Organization (NBRO) (Carter, 2008). The Disaster Management Center (DMC) is the lead agency, coordinating national and sub-national programs aimed at reducing disaster risks through mitigation, public awareness, early warning dissemination, emergency operations, and relief coordination. The Department of Meteorology plays a crucial role in preparedness by providing meteorological and climatological services and early warning systems. It collects and analyzes data on rainfall, agro-meteorology, and climate, contributing to disaster risk reduction efforts (Department of State Development, Infrastructure, and Planning, 2013).

Despite progress, challenges remain in implementing a fully integrated disaster risk reduction (DRR) strategy. The focus leans toward disaster response rather than proactive risk reduction, with limited institutional support and inadequate engagement of key ministries, which weakens coordination and the comprehensiveness of disaster management plans (Gunathilaka, 2015). Capacity building is also hindered by a lack of credible research, training, and user-friendly tools, creating gaps in early warning systems and preparedness. Issues such as political

instability, inadequate risk assessments, and unplanned settlements worsen the situation (Carter, 2008).

To address these challenges, Sri Lanka has launched disaster projects like flood mitigation in Kalutara, Dambulla, and Jaffna, and landslide prevention in Kothmale and Punchiraththota. The DMC has introduced a disaster communication system, including early warning towers and satellite communication to alert vulnerable communities (Disaster Management System, 2013). The Sri Lanka Comprehensive Disaster Management Programme (SLCDMP) for 2014-2018 aimed to integrate DRR and climate change adaptation into development processes, promoting resilient communities. However, more work is needed to fully integrate DRR into national planning, improve government coordination, and raise public awareness to create a more disaster-resilient Sri Lanka (Herath, 2016).

4. Conclusion

The qualitative analysis focuses on flood and landslide risks in Sri Lanka, revealing challenges in disaster management. Despite warnings, people are reluctant to leave their traditional lands, which indicates a need for changing public attitudes. The current disaster warning systems are ineffective, especially as victims increase. Urban planning outside main cities is inadequate, making recovery efforts difficult. The analysis stresses the importance of identifying disaster risk areas, improving planning, and enhancing response measures. Empowering village committees and Relief Service Offices for quick disaster response is essential. Increased public awareness, particularly in schools and communities, about disaster prevention and response is recommended. Establishing software for swift data collection and effective post-disaster services should be implemented nationwide.

Learning from other developing countries, acquiring advanced disaster management technology and equipment is necessary for both pre- and post-disaster stages. A national program to educate people on disaster threats and gather their input should be conducted. Urban areas need systematic planning to reduce flood impacts and protect property. Furthermore, the Sri Lankan army should be trained and equipped with modern tools to assist in disaster situations and lead preparedness programs for civilians, ensuring a more effective national response to future disasters.

5. Acknowledgment

Working on the research titled “Disaster Management System of Sri Lanka and Preparedness for Frequent Natural Calamities” provided me with significant knowledge. I am deeply grateful to Colonel LANB Perera for assisting in selecting the topic, and to my supervising officer, D.M.M. Chandanamali, for her invaluable guidance and support. I also appreciate the contributions of researchers and authors whose work formed the core of my study. Special thanks go to Maj GLA De Silva for his help with language corrections, and lastly, I extend my heartfelt gratitude to my family and friends for their love and motivation.

6. Keywords

Disaster Management , Preparedness, Resilience, Risk Reduction

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Role of the Colombo Port City in the Development of the Sustainable Blue Economy Concept in Sri Lanka: Lessons from the European Union

M.J.M. Udara Priyanjana Jayawardana

Legal Draftsman's Department of Sri Lanka. udarapriyanjana@gmail.com

1. Introduction

The ports and shipping lanes have long provided the platform for political and trading empires, where the collaboration between political and economic forces has been governed by the political leadership at the time. As a result, majority of port cities are metropolises. World-class port cities oversee a vast network, serve as cultural hubs, and pioneer new cultural, political, economic, and social practices. Therefore, port city concepts around the world are currently following a new and narrow path. Port cities continue to produce innovative architecture and urban planning while also manifesting the spatial impact of globalisation. Consequently, new projects in port cities are often complex.

On September 17, 2014, the Colombo Port City Project made its debut. This development project has contributed remarkably to the GDP by generating a number of employment opportunities and attracting foreign direct investments to the country. However, it has faced scrutiny for its procedural aspects and it remains to be seen whether the Port City Project can achieve sustainable development and positively impact the Sri Lankan economy within the framework of the sustainable blue economy. It can be noted that there is uncertainty about the project's ability to achieve sustainable growth and contribute to the Sri Lankan economy within the Sustainable Blue Economy. The Sustainable Blue Economy Concept has been well developed in the European region, and smart green ports are popular and have been successful in some member states. Sri Lanka, a developing island nation along the historic silk route, should prioritize the adoption of the sustainable blue economy concept through the PCP for sustainable growth.

This paper aims to analyse the growth of the Coastal and Marine Conservation and Protection (CPCP) program by addressing the current deficiencies in the context of the Sustainable Blue Economy Concept. It also investigates whether the program effectively contributes to Sri Lanka's sustainable development objectives. Furthermore, this research aims to analyze the future obstacles faced by the Colombo PCP and propose strategies to overcome these issues through the implementation of the Sustainable Blue Economy concept and advanced technology.

2. Methodology

The qualitative research method, which is based on primarily legal sources such as the Constitution of The Democratic Socialist Republic of Sri Lanka, national legislations particularly the Colombo Port City Economic Commission Act, No. 11 of 2021, The Sri Lanka Sustainable Development Act, No. 19 of 2017, The Marine Pollution Prevention Act, No 35 of 2008, The Sri Lanka Ports Authority Act, No. 51 of 1979, Superior Courts Judgments including the determination of the Supreme Court on the Colombo Port City Economic Commission Bill, international legal instruments such as the EU strategy for cooperation in the Indo-Pacific (Hereafter referred to as "EU strategy") and commission reports published by the EU Parliament and secondary legal sources such as scholarly books, journal articles, newspaper

articles, technical reports published by the Central Bank of Sri Lanka and other relevant government institutions and non-government institutions, and academic webinars available in social media has been used in this research.

3. Results and Discussion

The Sri Lankan government is looking at the Hambantota Port and Colombo Port City projects, which are believed to be the two primary ones. The government plans to foster foreign direct investment and support growth, which will also benefit from various reforms. It can be pointed out that due to the Covid-19 disease situation that Global and Sri Lanka are facing, Sri Lanka has lost the opportunity to get a proper approach when it lost its other incomes.

This season marked Sri Lanka's recovery from the aftermath of the Easter attack. The government decided to pay off the debt while focusing less on the country's foreign reserves. The government decided not to restructure the country's debt at the first opportunity. This decision clearly failed to prevent the country from falling into a debt trap. These projects were unable to achieve the expected economic revival in Sri Lanka due to the epidemic situation. The government aimed to achieve rapid international direct investment by giving the Colombo Port City Project a new face and constitutionally bringing it under a different framework. One of the primary challenges in the Colombo Port City Project is the ineffectiveness of the environmental impact assessment and the absence of any social impact assessment. One of the main pillars of the Sustainable Blue Economy is creating employment opportunities and contributing to economic development while minimizing its impact on the environment. However, the Colombo Port City Project has made a huge impact on the marine environment and marine ecosystems in coastal waters in Sri Lanka. The reclamation process caused erosion in the southern coastal areas of the country, which are popular tourist destinations. Despite generating thousands of job opportunities and significantly boosting Sri Lanka's economy, the environmental impact of the Port City project has negatively impacted the traditional and small-scale fisheries communities in the southern part of the island. areological impact assessment that has been done for the Colombo Port City Project and approved by the competent authorities, the failure of such a project is shown by the recovery of the Dutch-era cannon at the reclamation time period. Considering the aforementioned environmental and archaeological impacts, it is a well-established fact that the Colombo Port City Project has not met the requirements set by the Sustainable Blue Economy concept.

The challenges posed by regional ports like Chittagong in Bangladesh, Visakhapatnam and Mumbai in India, and Singapore port should also be taken into account. Sri Lanka is situated in the heart of the ancient Silk Road, and the Colombo Port has played a significant role since ancient times. China’s One Belt, One Road Program has immensely influenced not only the Colombo Port City Project but also the Indian Ocean Maritime Trade Governance. Hence, it can be identified that there may be future Chinese dominance in the Indian Ocean through this port city project. According to Sindaerpal Sing, Chinese governance in the Indian Ocean could pose a threat to the Sustainable Blue Economy concept's goals, as well as to the security and regional coordination among the countries in the Indian Ocean region. Since China has acquired the Colombo Port City Project, it has created a number of geopolitical issues in the South Asian region.

Implementation of the recommendations and commitments in the priority areas prescribed by the European Union's strategy on Cooperation in the Indo-Pacific is crucial not only for the achievement of goals in the Sustainable Blue Economy but also for the clear vision for the Colombo Port City in future economic activities in South Asia. According to Frederick Kliem, "*the EU strategy provides an alternative way to conceive of regional relations, seeing it neither as inherently anti- nor pro-China."* Most of the goals set by this strategy focus on sustainable green transactions and ocean governance. Thus, the Port City area must introduce a green transaction system and develop an investor-friendly legal mechanism.

Despite its origins in Hamburg in 2012, the Smart Port City Concept later underwent moderation in accordance with the Sustainable Development Principles. Expansion of international trade by sea and environmental and sociological challenges led to the innovation of this smart port city concept. It can be identified that the Smart Green Port Concept is more popular in Norway. Private companies and municipal councils own the majority of these Smart Green Ports. The most important factor is that these Norwegian municipalities and ports collect levies and charges according to the environmental performances. The Norwegian Harbour Act 2020 establishes the legal framework for this significant action, which aligns with the sustainable blue economy concept. This levying system has significantly influenced the environmentally friendly and sustainable Port City activities in the Norwegian territory, as the sea handles 90% of total imports and exports. In 2019, the Norwegian government, taking into account the development of modern technology, environmentally friendly maritime activities, and supply chain management, made significant strides in implementing the Smart Green Port concept, which stands as the most successful example in the modern maritime trade world. This concept can be highlighted as the practical implementation of the Sustainable Blue Economy Concept.

4. Conclusion

The Colombo Port City Project is the largest Chinese owned investment project in Sri Lanka. The ancient and modern silk routes intersect at Colombo Port City. At the outset, having considered the geo-economic advantages of the Port City, Sri Lanka shall take necessary actions to attract investors based on the Sustainable Blue Economy Concepts developed by the European Union. Specifically, it is hereby recommended to develop the Colombo Port City Project in line with the directions given in the EU Strategy on Cooperation in the Indo-Pacific and the EU Sustainable Blue Economy Concept. Secondly, getting the advantages of artificial intelligence and modern technological development and implementing the developments in the Green Smart Port City concept in Norway, the Colombo Port City Project structure must be moderated to meet the demands of the modern maritime and sea trade world. Thirdly, it must be recommended that the rule of law and neutral alternative dispute resolution system be mandatory for the attraction of the investors into Colombo Port City and the achievement of the sustainable development goals through this massive investment project. Implementation of principles of SDG 14 under the Sri Lanka Sustainable Development Act, No. 19 of 2017, which provides for the development and implementation of a national policy and strategy on sustainable development in Sri Lanka. Additionally, implementation and further amending the Marine Pollution Prevention Act, No. 35 of 2008, and bringing the necessary amendments to the Sri Lanka Ports Authority Act, No. 51 of 1979, are highly recommended in order to launch the smart green port city concept in line with the sustainable blue economy concept in Sri Lanka. Finally, the Colombo Port City Project can be converted into a treasure for the

rehabilitation of the Sri Lankan economy when the Sri Lankan government prepares a policy based on the EU Sustainable Development Plan and how China develops Shenzhen City located nearby Hong Kong.

5. Key words

Colombo Prot City, Sustainable Blue Economy Concept, Sustainable Development Goals (SDG), Legal and Policy Analysis

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Simple Flood Risk Assessment Method to GND Level in Sri Lanka

W.M.S.B. Wanninayake

Department of Environmental Management, Rajarata University of Sri Lanka, Mihintale, Sri Lanka.
sisirawanninayake@gmail.com

1. Introduction

Natural and man-made disasters are increasing worldwide and floods remain at the top (UNISDR, 2017; CRED, 2020). Concerning Sri Lanka, floods are the most frequent and threatening disaster at present while landslides, droughts, high winds, tsunamis, human-elephant conflict, etc. occur in different scales (MDM, 2014; Eckstein, et al., 2019). Theoretical concepts of disaster management affirms that disasters should be managed in the phases of the Disaster Management Cycle which include prevention, mitigation, preparedness, response, rehabilitation, and reconstruction (Carter, 2008). Pre-disaster management phase is given more significance at present and the disaster management activities are planned on the results of disaster risk assessments (Wanninayake, et al. 2023; Wanninayake, et al. 2024). In the literature, though there are many disaster risk assessment (DRA) methods, there is a gap of simply applicable method to the local level in Sri Lanka which can be applied with available data (DMC, 2019; Wanninayake, et al. 2023). Accordingly, this study aims to propose a simple flood risk assessment method to the local level in Sri Lanka. However, DRA methods should be developed for multiple disasters in the future concerning the relevant factors.

2. Materials and Methods

The study area is the lower part of the Deduru Oya basin in Sri Lanka. The most flood-vulnerable four Divisional Secretary Divisions ((DSD); Chilaw, Arachchikattuwa, Pallama, and Bingiriya were selected for the study. About 425 families from the most flood-vulnerable 15 Grama Niladhari Divisions (GND) were selected for the study as the sample following the stratified random sampling method. Accordingly, primary data were collected from this sample using several methods such as questionnaire survey, key person interviews, and field observations. Several sources such as journal papers, PhD thesis, manuals, data records from Divisional Secretariates (DS), District Disaster Management Coordinating Units (DDMCU), etc. were used to collect secondary data. The qualitative data analysis method was used in this study.

3. Results and Discussions

The flood risk assessment model developed for the GND level is simple to apply. However, the model was developed on theoretical base. Accordingly, the following equation was used to develop the model (Equation 1). Several researchers have used this equation to assess disaster risk with some alterations relevant to their studies (Davidson and Shah, 1997; Bollin, et al, 2003; Wanninayake, et al, 2023). By the components of hazard, exposure, and vulnerability a minimum number of variables were used in the current study aiming to develop a simple model.

$$Risk = Hazard + Exposure + Vulnerability \quad [1]$$

The current model proposes to assess the flood risk by GNDs, accordingly, the unit of study is the GND. Most of the data needed for the proposed assessment are available in the relevant DDMCUs and DSs. In occasions where the secondary data are not available in the above sources, those data can be collected from the community without hindering the effort.

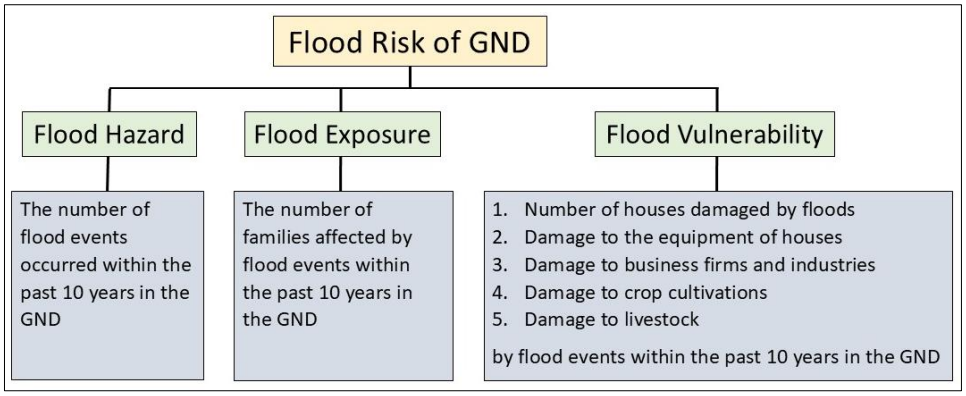


Figure 2: Proposed flood risk assessment model (Source: Developed by the researcher)

Accordingly, the following model (Figure 1) can be used in assessing the flood risk in GNDs.

Variables that should be considered under the factors of hazard, exposure, and vulnerability are mentioned in the model. In assessing the flood risk by the above variables, the levels of significance are specified and weighted on the opinions of the respondents and the secondary data.

Accordingly, the flood hazard of a GND should be calculated based on the number of flood incidents in the GND within the previous ten years. Hence, the GNDs can be categorized and assigned weights as in Table 1.

Table 1 Weights for Flood Hazard

Number of flood incidents	Weightage
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10 or above	10

Flood exposure of a GND should be calculated based on the number of floods-affected families in the GND within the previous ten years. Here, the percentage of the total families of the GND should be considered. Accordingly, GNDs can be categorized and assigned weights as in Table 2.

Table 2 Weights for Flood Exposure

Number of flood-affected families (%)	Weightage
0	0
1 – 10	1
11 – 20	2
21 – 30	3
31 – 40	4
41 – 50	5
51 – 60	6
61 – 70	7
71 – 80	8
81 – 90	9
91 - 100	10

Flood vulnerability of a GND should be calculated based on five variables;

- Number of houses damaged by floods
- Damage to the equipment of houses (Eg: clothes, furniture, utensils, etc.)
- Damage to business firms and industries
- Damage to crop cultivation (EG: paddy, vegetables, and other seasonal crops)
- Damage to livestock (Eg: cattle, pigs, chicken, etc.)

Accordingly, vulnerability can be calculated based on the number of incidents reported in a GND within the previous ten years. Here, the percentages of the total families should be considered. Through the summation of weightages for the five variables, total value for vulnerability should be calculated for the relevant GND. In damage calculations monetary values are not considered to maintain the simplicity and the applicability of the model. Accordingly, GNDs can be categorized and assigned weights as in Table 3.

Finally, as stated in the equation, flood risk can be calculated in summation of all values for a GND. In this model, there are some limitations i.e. usage of few variables, sometimes floods may affect a part of a GND but the whole GND is considered. However, this model is easier to apply by the local level stakeholders. Most of the time this assessment can be done by the Development Officers of DSs with the help of Grama Niladharies, and the community with the available data.

Table 3: Weights for Flood Vulnerability

Number of houses damaged by floods (%)	Weightage	Damage to the equipment of houses (%)	Weightage	Damage to business firms and industries (%)	Weightage	Damage to crop cultivations (%)	Weightage	Damage to livestock (%)	Weightage
0	0	0	0	0	0	0	0	0	0
1 – 10	1	1 – 10	1	1 – 10	1	1 – 10	1	1 – 10	1
11 – 20	2	11 – 20	2	11 – 20	2	11 – 20	2	11 – 20	2
21 – 30	3	21 – 30	3	21 – 30	3	21 – 30	3	21 – 30	3
31 – 40	4	31 – 40	4	31 – 40	4	31 – 40	4	31 – 40	4
41 – 50	5	41 – 50	5	41 – 50	5	41 – 50	5	41 – 50	5
51 – 60	6	51 – 60	6	51 – 60	6	51 – 60	6	51 – 60	6
61 – 70	7	61 – 70	7	61 – 70	7	61 – 70	7	61 – 70	7
71 – 80	8	71 – 80	8	71 – 80	8	71 – 80	8	71 – 80	8
81 – 90	9	81 – 90	9	81 – 90	9	81 – 90	9	81 – 90	9
91 - 100	10	91 - 100	10	91 - 100	10	91 - 100	10	91 - 100	10

4. Conclusion

Flood management measures should be identified based on proper flood risk assessments, but there is no such practice in the field with having no applicable flood risk assessment method. Further, the authorities state that the lack of funds and other resources have also affected not to conduct flood risk assessments periodically. Therefore, such a simple flood risk assessment method can be used with a minimum cost using the available human resources and existing data.

5. Key Words

Exposure, Flood risk assessment, Hazard, Vulnerability

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Spatial Data Infrastructure Trends in Urban Context: A Bibliometric Analysis

DMSLB Dissanayake, Manjula Ranagalage, JMSB Jayasundara, PSK Rajapakshe, NSK Herath, Samali Ayoma Marasinghe, WMSB Wanninayake, HUK Dilanjani, ALWM Perera, and HMYLP Herath

Department of Environmental Management, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka, Mihintale, Sri Lanka. dissanayakedmslb@gmail.com

1. Introduction

The urban areas are complex and dynamic, offering considerable socio-economic advantages. In the last couple of decades, urban areas have extensive development in many aspects. By development of urban areas, it is meant the transformation of rural areas into an urban setup through the socio-economic process, which is very complicated, and people move from rural to urban areas.(UN Department of Economic and Social Affairs, 2018). The rapid urbanization globally, going on over the last couple of decades. Rapid urbanization, technological changes, and a growing shift towards sustainability mark the growth of urban cities in recent decades. The driving force is population growth: more people have increased the number living in urban areas and placed the quality of life at the heart of these areas. (Mouratidis, 2021). Essentially, it can be observed that cities have experienced significant development since the turn of the past century through various waves of development, from industrialization that accelerated growth and expansion to the newer concept of a smart city. A smart city incorporates an integrated network of interrelated environments that adapt autonomously to changes in behavior through learning from daily activity patterns.(Kandt & Batty, 2021). Spatial Data Infrastructure (SDI) is a very important core part of the smart city framework since it allows integration, management, and dissemination of geospatial data. SDI plays a critical role in supporting sustainable development by enabling effective data sharing and spatial analysis for decision-making in urban and environmental planning. Although the some challenges such as integrating diverse data sources, achieving interoperability across platforms, and implementing real-time data applications have turned out to be recent challenges for the full realization of SDI potentials. Therefore, addressing these issues is essential and search for appropriate solutions to to create resilient and adaptable systems that support sustainability efforts within dynamic and complex urban settings.

Understanding research trends in SDI will be important to guide future studies in both SDI and urban development, since it helps indicate gaps, new emerging technologies, and challenges of integration in urban settings. Bibliometric analysis is very critical in uncovering such gaps, monitoring emerging concepts, and giving shape to future research directions. With systematic analysis of publication patterns, keywords, citations, and influential studies, it lays the foundation for informed and targeted research in the field. It helps to ensure that research has a solid background derived from prior knowledge.(Donthu et al., 2021). The following are the objectives that have been addressed in this study. (I). To identify the most influential research publications in contributing to knowledge growth in SDI, their trends, and application in urban areas.(II)To examine the development of author key words over time. (III).To identify the main research propose, future research directions and suggest new approaches to applying SDI in urban planning and smart city management.

2. Materials and Methods

This Bibliometric analysis targets publications on SDI systems and related urban research. The review has only included empirical and review articles, while excluding those studies published in languages other than English during the Scopus database data collection process.

Commonly, a bibliometric analysis comprises five major steps, namely research design, data collection, analysis, visualization, and interpretation.(Župič & Cater, 2015). In this study, we focus on the three main stages.

Data were downloaded from the Scopus database on 28 June 2024, considering the literature related to the keywords "Spatial Data Infrastructure" and "City." The study analyzed data from 156 publications published in English, from the years 2003 through 2023, by using Scopus, since the database provides broad coverage of peer-reviewed literature. The obtained records were analyzed using bibliometric tools comprising publication trends, author keywords, and visualizations like trend charts, thematic maps, and author productivity charts, using the Biblioshiny software in order to ensure efficient synthesis. The results have been visualized using figures, and statistics that were subjected to further evaluation so as to make the necessary conclusions. This bibliometric analysis is limited to not considering non-English publications. This may result in a biased presentation of the SDI system and urban research emarging from various linguistic contexts.

3. Results and Discussion

3.1. Trend Analysis

The annual growth trend in papers related to "Spatial Data Infrastructure system of a City" research has grown quite high from the years 2005 to 2023. There were only a few papers from the year 2000 to 2012, showing very less interest in the topic. There has, however, been increased interest from the year 2013 to 2019, whereby a peak was reached in 2019 with 19 publications. This rising trend continued sharply from the year 2020 up to 2023 to underline emergence as a hot research area. The mean average annual growth in publications was 8.72%, with 4229 references to documents averaging at 12.79 citations per document.

The publication trends of the study "Spatial Data Infrastructure System of a City" shows an increasing tendency between 2005 and 2023. In recent years, since 2020, there has been consistent growth in the level of research being pursued, reflecting that greater importance is being vested in sustainable and green city development.(Javidroozi et al., 2023). The publication trends of “Spatial Data Infrastructure System of a City" shows an increasing tendency between 2005 and 2023. In contrast, the output is low from the year 2000 onwards to the year 2012 because at that time the discipline was in an infant state. Three stages are formed, with peaks in the years 2010 and 2013, and the highest in the year 2019, as the interest would have surged amidst technological development and increased complexity in managing urban areas.

3.2. Keywords

Keywords serve as a summary of literature content. In this study there are 1194 keywords in the literature on SDI and City from 2003 to 2023.



Figure 1. Word Cloud Map

The word cloud underlines the central role of Spatial Data and Geographic Information Systems in the domain, pointing out their role as cornerstones for the building of urban infrastructure. The terms urban planning, smart city,three dimensional computer graphics ensure strong base to urban applications supported by advanced technological tools. This is evidenced by the inclusion of keywords such as"Information Management","Interoperability", and"Decision Making" that reflect the increasing focus on integrated data systems and application in assisting informed urban development. Further evidence is the inclusion of sustainable development and urban growth, reflecting commitment to the use of spatial data infrastructure for solving some of the key challenges being faced by urban areas today. The figure 1 as a whole might be taken to indicate that research is not only becoming more technically sophisticated but that it is also increasingly congruent with the demands of modern urban management in sustainable ways.

3.3. Thematic Analysis

Thematic analysis provides a visual presentation of the trending themes in this area of research (Dissanayake et al., 2022). The thematic map illustrates basic themes, namely, GIS, SDI, Spatial Data, 3D Modeling, Photogrammetry, and Urban Planning, that are core to spatial data research. These themes, especially SDI, GIS, and urban planning, are somewhat simple but significant concepts within this area of research. GIS, SDI, and 3D modeling, along with photogrammetry, and, demarcating new paths for improving urban planning through improved spatial analysis, visualization, and data integration that would lead to informed decision-making. Such technologies would ensure better land use planning, resources management, and infrastructure development that would eventually link to sustainable and resilient urban environments. Analysis offers the emergence of new roles that smart city initiatives and 3D computer graphics are playing in enhancing SDI. Moreover, the top right quadrant of the map underlines newer themes, such as location-based services and mobile navigation systems; these have a smaller importance compared to other communities' locations, but nonetheless show two areas of interest that in the future will likely grow. However, there is an emerging trend to engage various user communities, including the public and non-governmental organizations, in order to realize full benefits derived from spatial data development investments(Kelly, 2007). The most effective solution to address these spatial community issues remains the implementation of SDIs.

4. Conclusion

This study analyzes the bibliometric research development of SDI and city development, thus gives some keys to enlighten the most important development trend, and fast-growing themes such as "Spatial Data Infrastructure," "Spatial Data," and "Geographic Information System" to develop hot and key areas in which research and innovation are continuously being carried out. It also shows collaboration trends between scholars and institutions, and this can be of great value in insights, informing city planners, policymakers, and industry professionals in their search for partnership opportunities with academic and technological organizations. Urban planners and policymakers should actively engage with academic institutions and technological organizations to foster collaborative research initiative through new trends in SDI and GIS feeding into informed decision-making which can inform decision-making in urban development and lead to sustainability and resilience in the urban environment amidst changing regulatory and societal dynamics.In fact, such indications have become imperative to optimize strategies for urban development and manage smart cities more effectively to render them sustainable and resilient. This requires continuous analysis of trends emerging in development, technological changes, and changing regulatory situations to accomplish informed decisions and improved collaboration across agencies both in urban planning and smart city management.

5. Acknowledgment

This work was funded by the Research & Publication Committee, Faculty of Social Sciences & Humanities, Rajarata University of Sri Lanka, for the Environmental Management Department's research project (RJT/R&PC/2024/R/FSSH/03).

6. Keywords:

Bibliometric Analysis, Geo Spatial Technologies, Spatial Data Infra-structure, Urban Area

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The Southern Expressway's Influence on Settlement Patterns Change Using Remote Sensing in Mahara And Biyagama DS Divisions In Sri Lanka.

P.D.Sellahewa

Department of Geography, University of Peradeniya, Sri Lanka. deshansellahewa@gmail.com

1. Introduction

Infrastructure development plays a pivotal role in transforming rural settlement patterns, particularly in developing countries. This study investigates the impact of highway construction on rural and suburban settlements in Sri Lanka, focusing on Kadawatha, a rapidly urbanizing area formed by the merging of the Mahara and Biyagama divisional secretariat divisions. The concept of settlements, as defined encompasses the totality of human communities, including their social, material, organizational, spiritual, and cultural elements. (United Nations,1976). These settlements are dynamic entities that evolve due to various factors, such as population growth, economic development, environmental changes, and historical events. (Li, N. and Jiang, S ,2018). In Sri Lanka, urbanization was initially propelled by the economic liberalization of the 1970s; however, the subsequent civil war in Sri Lanka stunted development, particularly in the northern and Eastern regions. Following the end of the civil war in 2009, the country launched an extensive infrastructure development agenda, including large-scale road networks, significantly affecting rural and suburban landscapes. This research utilizes Geographic Information Systems (GIS) to analyze the transformation of Kadawatha area from 2011 to 2023, focusing on land use, population density, and economic activities. Findings from this study are expected to provide critical insights into the relationship between infrastructure development and settlement transformation, with implications for sustainable urban planning in developing nations.

2. Materials and Methods

The Mahara and Biyagama DS Divisions in Sri Lanka's Gampaha District were selected as study sites due to their proximity to the Southern Expressway and accelerated urbanization rates. Located approximately 25 Kilometres north and 15 Kilometres northeast of Colombo, respectively, Mahara's coordinates are 6.9233° N, 79.9522° E, covering 90 Square Kilometres, while Biyagama spans 62 Square Kilometres at 6.9561° N, 79.9847° E. Collectively, the study area encompasses 157.8563652 Square Kilometres. Landsat-8 and Landsat-7 satellite imagery, with a 30-meter resolution, was employed for remote sensing analysis.

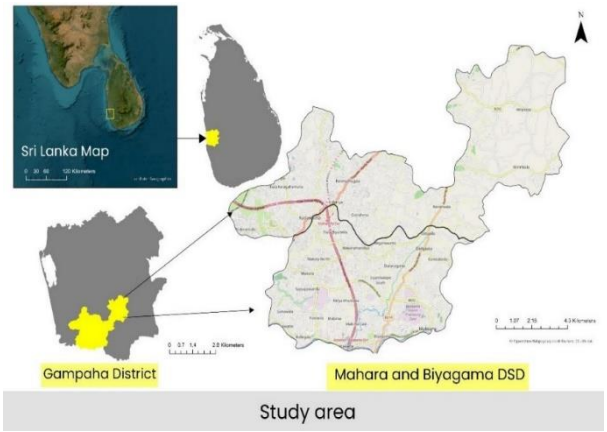


Figure 1: Study area map

The study employed Landsat 7 and 8 satellite imagery (2011, 2023) for land use classification, utilizing supervised classification to delineate specific settlement patterns. Google Earth used check ground truth verification and Overlay analysis (Intersect), enabling a comprehensive assessment of land use and settlement transformations influenced by the Southern Expressway (Figure 2).

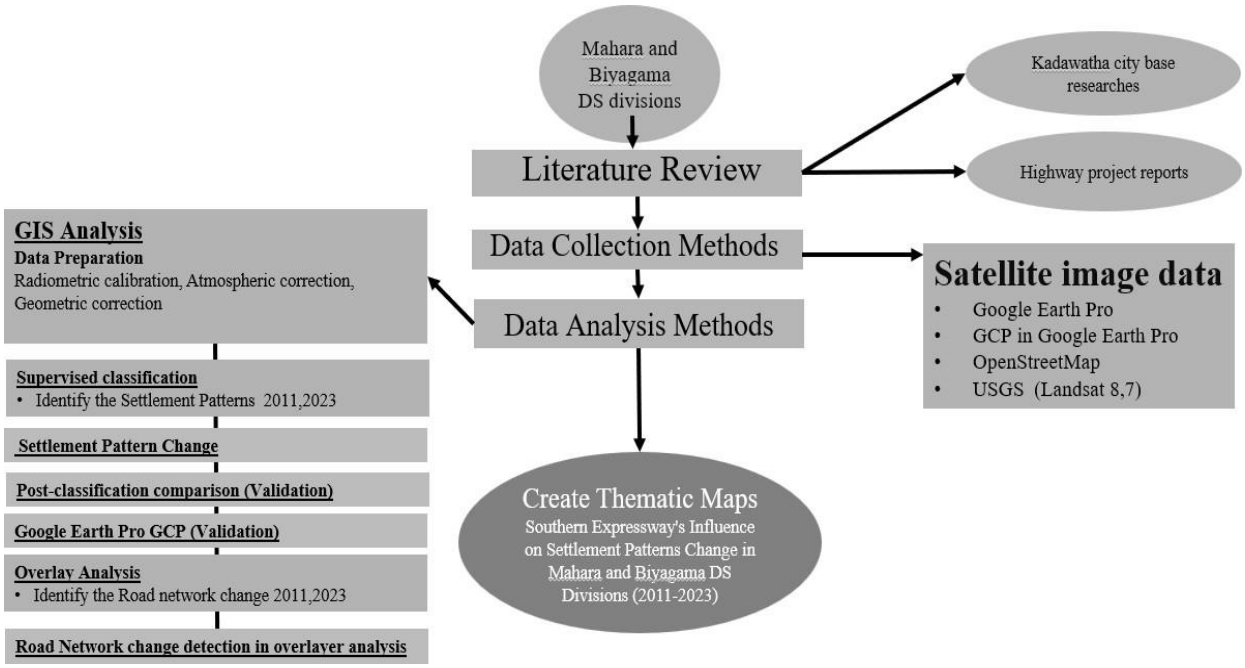


Figure 2: Methodology flowchart

3. Results and Discussion

The supervised classification results (Figure 3) illustrate changes in settlement patterns within the study area from 2011 to 2023. In 2011, settlement coverage was recorded at 53.95 km², expanding significantly to 68.69 km² by 2023, indicating a growth of 14.73 km² in settlement areas (Table 1). For classification purposes, smaller forests, paddy fields, and other undeveloped regions were categorized as non-settlement areas, totalling 103.90 km² in 2011 and subsequently declining to 89.17 km² by 2023. This study quantifies settlement expansion during these periods, highlighting the extent of urbanization influenced by infrastructure development (Figure 3). Data analysis for 2011 and 2023 reveals a marked increase in settlement expansion, closely linked to the construction of the Southern Expressway and associated road networks. In 2011, there was no expressway in this area, while by 2023, extensive road systems catalysed growth in industrial and commercial activities. Additionally, establishing a provincial interchange bus station spurred a large volume of bus services, especially those connecting to the southern province of Sri Lanka. This enhanced connectivity has subsequently driven various economic activities, with new housing developments, commercial enterprises, and service- based industries proliferating around these transportation hubs, progressively transitioning the area's rural landscape to urban.

The migration of individuals working in Colombo to this suburban area further underscores the impact of infrastructure improvements on settlement patterns. As demand for services grew, banking, hospitality, dining, and other essential service industries emerged, contributing to the area's urbanization. These developments collectively illustrate how infrastructure, specifically the Southern Expressway, has been a key driver in transforming land use, economic activity,

and population distribution in the Kadawatha region. This study highlights the significance of infrastructure in accelerating urbanization, with implications for regional planning and policy aimed at managing urban growth sustainably.

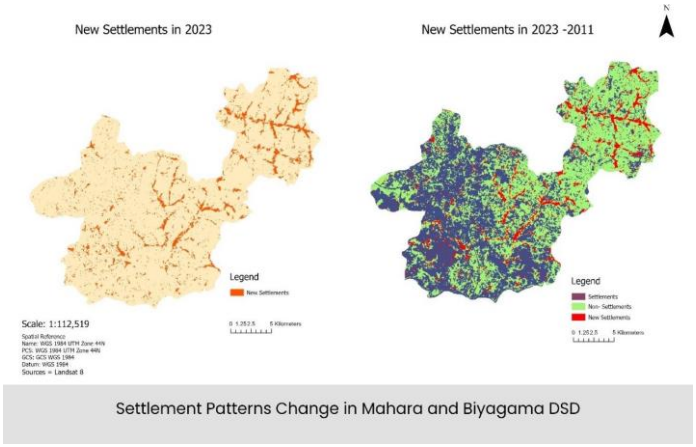


Figure 3: Settlement patterns Change in Mahara and Biyagama DSD

Table 1. Settlement patterns Change in Mahara and Biyagama DSD image classification result

Year	**Settlement area (km^2)**	**Non -Settlement area (km^2)**
2011	53.95264	**103.90372**
2023	68.68659	**89.16672**
Changed area	**14.73**	**14.73**

4. Conclusion

In this research, the settlement area of Mahara and Biyagama DSD in 2023 is more than the settlement area in 2011. The change is 14.73 km2. The area around Kadawatha was the most settlement area during the growth. Because of new road system in that area along with the Southern Expressway, the settlement has grown. With that, the Kadawatha area has changed economically and socially. The overall accuracy of the study, validated through the Google earth, and accuracy level is 82%. Recommendations include strategic town planning initiatives.

5. Acknowledgment

I am thanking family members for their financial support. Thanks also to the Department of Geography University of Peradeniya for the data and ArcGIS pro licence.

6. Keywords

Remote Sensing, Road network, Settlement patterns

7. References

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IRSSSH 2024

International Research Symposium on Social Sciences and Humanities

Track 5
Language, Culture, and Literature

Bridging Cultural Divides for Global Sustainability



A Comparative Analysis of Characteristics Buddhist Civilization and Buddhist Culture

Sandamali Udeshika Dissanayaka

Department of Pali and Buddhist Studies, University of Ruhuna. Sri Lanka.
dissanayakasandamali1996@gmail.com

1. Introduction

Buddhism, one of the world's oldest and most influential religions, has significantly shaped the cultures and civilizations of many countries across Asia and beyond. Originating in the 6th century BCE with the enlightenment of Siddhartha Gautama, Buddhism's teachings rapidly spread from its birthplace in India to regions as diverse as Central Asia, China, Japan, Korea, Tibet, and Southeast Asia. Over centuries, Buddhism evolved not just as a spiritual tradition but also as a driving force in the development of civilizations, leaving a profound impact on art, literature, politics, and societal norms. Understanding the interplay between Buddhist civilization and Buddhist culture is essential for comprehending how this religion has adapted and persisted through the ages. Buddhist civilization encompasses the large-scale social, political, and economic structures shaped by Buddhist principles and institutions. It includes the historical development of Buddhism, its spread across different regions, and the establishment of monastic institutions and educational centers that played crucial roles in societal governance and cultural preservation. In contrast, Buddhist culture refers to the everyday practices, rituals, values, and social norms influenced by Buddhist beliefs. It is the lived experience of Buddhism as manifested in the daily lives of individuals and communities. This includes meditation practices, ethical guidelines, ritual ceremonies, and the communal activities that bind Buddhist communities together. This research aims to explore the dynamic relationship between these two dimensions of Buddhism-civilization and culture. By examining historical influences, regional adaptations, and the impact of modernization and globalization, the study seeks to provide a comprehensive understanding of how Buddhist practices are maintained and transformed in contemporary contexts.

Aims and Objective

To analyze the historical evolution of Buddhist civilization and its impact on present-day Buddhist practices. To investigate the role of local cultures in shaping contemporary Buddhist practices. To examine the effects of modernization and globalization on Buddhist civilization and culture. To explore the relationship between institutional Buddhist structures and individual practices.

2. Research Methodology

This paper is founded on conceptual research relying on a qualitative research approach to develop an in-depth understanding of the difference between Buddhist civilization and Buddhist culture. Primary sources rely on the Tripitaka, supplemented by secondary sources of data provided through scholarly journals, encyclopedias, and acceptable online sources. Besides, it has been highly utilized during the research work by Google Scholar and Google Academia to source various peer-reviewed articles, conference proceedings, and theses that can be expected to undergird a sound scholarly foundation for this research. This methodology, directed toward a qualitative research design, interprets and explains the main ideas, patterns, and thematic elements in Buddhist civilization and Buddhist culture. Google Scholar and Google Academia offer a wide range of perspectives through various regions and time periods, thereby helping to define trends, regional adaptations, and how globalization affects practices in Buddhism. This will not only provide an in-depth analysis but also bring forth new insights into the connectivity and distinction of Buddhist civilization and culture.

3. Literature Review

The paper is concerned with the fine differences between "culture" and "civilization", with special reference to Buddhist concepts and Sri Lankan culture. It relies on major writings by well-known scholars in the field of Buddhist Studies. The title goes as "Buddhist Civilization: Principles and History", by H.M. It is a fundamental reference by Moratuwagama and Emeritus Professor Chandima Wijebandayan, 1990, especially the section titled "Civilization, Culture, and Religion", where it outlines Unique characteristics of "culture" from a Buddhist perspective. Complementary insight into the exploration is the work of Professor W.S. Karunarathna, entitled "Buddha Drshanaya and Charanay" (1787), an authentic commentary which contributes to the scholarly definitions of culture that will enrich this study. Drawing from these seminal works, the present research attempts to explain the intrinsic differences and interdependencies that exist between "culture"and "civilization". In addition to these traditional sources, modern material sheds further light on the dynamics at work in Buddhist culture. "The Buddhist Culture of Sri Lanka" by Sirisaman Wijetunga and Dr. Premadasa Sri Aladavattage (2012) dwells on various aspects of Buddhist culture in different stages of Sri Lankan history. The book is organized on a chapter-by-chapter basis of the many differing aspects observed in Buddhist culture. While Chapter One leads the reader through a history of Buddhism, subsequent chapters move on to literature, the monastic community, arts and crafts, folk art, and the revival of Buddhist traditions. These jointly reinforce the idea that in Sri Lanka, Buddhist culture has taken new shapes and forms with the passage of time and thus influenced the national identity. Ruwei Wei's article "Civilization and Culture" published by Shenzhen University in 2011, further informs the comparative framework. A historical analysis of how scholars like Oswald Spengler, Fernand Braudel and Philip Bag by defined "civilization" and "culture" will be presented in the article. Wei does suggest a conceptual model in which "civilization" represents the general socio-historical structure, including a wide geographical area, shared institutions, and values, whereas "culture" represents specific beliefs or practices of the larger civilization. Wei's model provides a good theoretical framework from which to examine the interrelationships and distinction of Buddhist "civilization" and "culture", especially in Sri Lanka. Synthesizing these resources, this research outlines an intricate framework through which Buddhist culture and civilization can be understood-what attributes uniquely belong to or define each. Combining this historical insight with the contemporary perspective, therefore, provided a better interpretation of the contribution of Buddhist civilization toward molding the cultural identity of Sri Lankans. These findings are important in underlining the fact that "culture" and "civilization" are complementary yet still different concepts, with one serving the purpose of the other in the Buddhist heritage and with a lingering continued impact on society. The study also uncovers emergent trends and lacunas in the literature through comparisons, hence laying a foundation for further research into the interrelationship between "Buddhist culture" and "civilization" in Sri Lanka and elsewhere.

4. Result and Discussion

Buddhist civilization and Buddhist culture, while intrinsically linked, refer to distinct but overlapping concepts. Understanding the nuances of each term requires an exploration of their origins, development, influences, and manifestations in different contexts.

Buddhist Civilization

The word civilization came from the Latin adjective civil, a reference to citizen. Citizens willingly bring themselves together in Political, Social, economic, and religious organizations-they merge that is in the interests of the larger Community. Over time the word civilization has come to imply something beyond Organization refers to a particular shared way of thinking about the world as well as a reflection on that world in art literature drama and a host of other cultural happenings. Its original meaning is the manner or condition in which men live together as citizens. Definitions "A Civilization is a complex society or culture group characterized by dependence on agriculture, long-distance trade, state form of Government, occupational

specialization urbanism and class stratification". Along with these core elements, civilization is often marked by a combination of several secondary elements, including a developed transportation system, writing, standards of measurement, formal legal system, great art style, monumental architecture, mathematics sophisticated metallurgy, and astronomy. (Karunarathna W.S.,1987) "An advanced state of intellectual, cultural and material development in human society marked by progress in the arts and sciences, that extensive use of record keeping, including writing and the appearance complex political and social institutions. According to Albert Schweitzer, "It is the total of all progress made by man every sphere of action and from every point of view in so far as the progress helps towards the spiritual perfecting of individuals as the of all Progress" According to Oxford English Dictionary civilization is "the action or process of civilizing or of being civilized, developed or advanced state of human society (Karunarathna W.S.,1987).

Characteristics of Civilization

Civilization distinguished by traits Civilization has been distinguished by its means of subsistence, types of livelihoods, settlement Patterns, forms of government, social stratification, economic systems, literacy, and other cultural traits. All human Civilizations have depended on agriculture for subsistence. Growing food on farms results in a surplus of food, particularly when people use intensive agricultural techniques such as irrigation and crop rotation. A surplus of food permits people to do things besides produce food for a living and also results in a division of labor and a more diverse range of human activity. Different Settlement Patterns Civilizations have distinctly different settlement patterns from other societies. Complex Political Structure Compared with other societies civilizations have moved to a complex political structure namely the State. There is a greater difference among the social classes. The ruling class normally concentrated in the cities, has control over much of the surplus and exercises through the actions of a government or bureaucracy. Display more complex patterns of ownership. Living in one place allows people to accumulate more personal possessions than nomadic people. Some people also acquire landed property or private ownership of the land. Development of Writing - Writing, developed first by people in summer, is considered a hallmark of civilization. Trader's bureaucrats relied on writing to keep accurate records. Like money, writing was necessitated by the size of the population of a city and the complexity of its commerce among people who were not personally acquainted with early others. Elements of civilizations, Urban Society, Religion Literature, Government, Specialization, Social classes, Tool making, Leisure Education / Criticism Benefits of Civilization Administrative system. Various laws, Protection from chaos (Complete disorders) Protection from hunger, shelter, etc. Sewage system. (Wastewater and excrement conveyed in sewers.) Technological invention, Innovation, learning, etc, People working towards a common goal to survive. People are not independent, so everyone works, forming an economy, and making a group self-department, People can work together to solve problems and create new things. (Yasassi P., 2020). Definition and Scope Buddhist civilization refers to the large-scale social, political, and economic structures influenced by Buddhist principles and institutions over centuries. It encompasses the historical development, spread, and impact of Buddhism as a major world religion.

Buddhist Culture

What is Culture The customs, traditions, beliefs, and values that a group of people share. It includes language, what they do, eat, make, believe, and how they dress. Groups that share these traits are called cultural groups. The culture of a society is the way of life of its members; the collection of ideas and habits which they learn, share, and transmit from generation to generation. Ralph Linton: Therefore, Culture has two essential qualities: firstly, it is learned, and secondly it is shared. Culture defines accepted ways of behaving for members of a particular society. Such definitions vary from society to society. Every society has certain common problems to deal with for example the problem of dependent members

such as the very young and the very old. However, solutions to such problems are culturally determined. It is to be noted that the solutions provided in one society may well be regarded as indefensible by members of other societies, e.g. under certain circumstances, "infanticide and geronticide" have been practiced by certain groups of Australian aborigines, Eskimos, and Caribou Indians. Whole which includes knowledge, belief, art, law, morals, custom, and any other capabilities and habits acquired by man as a member of society" (Tylor E.B.,1872).

Comparative Analysis

Interconnectedness Buddhist civilization and Buddhist culture are deeply interconnected. The structures and institutions of Buddhist civilization create a framework within which Buddhist culture flourishes. Monasteries, supported by state patronage, serve as centers of cultural life, preserving and propagating Buddhist practices. Differentiation While Buddhist civilization refers to the broader historical and structural aspects, Buddhist culture is more focused on daily life and individual practice. Civilization encompasses the political and economic dimensions, whereas culture is about personal and communal expression of Buddhist values. Evolution and Influence Both Buddhist civilization and Buddhist culture have evolved, influencing and being influenced by local traditions. The spread of Buddhism to new regions led to the development of unique cultural practices, even as the core teachings remained consistent. Modern Context In the contemporary world, the distinction between Buddhist civilization and Buddhist culture can be seen in how Buddhism adapts to modernity. (Chandima.W, Moratuwagama H.M,1990)

5. Conclusion

In conclusion, Buddhist civilization and Buddhist culture represent two interwoven dimensions of Buddhism's impact on societies. Buddhist civilization encompasses the historical, political, and structural aspects, illustrating how Buddhism shaped and was shaped by large-scale social dynamics. It highlights the role of Buddhist principles in governance, economic structures, and monumental contributions to art and architecture. Buddhist culture, on the other hand, focuses on the lived experiences, daily practices, rituals, and values of individuals and communities. It reflects the adaptability and diversity of Buddhism as it manifests in various local contexts and personal practices. Together, they provide a holistic understanding of Buddhism's influence over time. While Buddhist civilization offers a macro perspective on the institutional and societal transformations driven by Buddhist thought, Buddhist culture provides a micro view of the personal and communal expressions of Buddhist life. Their interplay underscores the richness and complexity of Buddhism, showcasing its ability to sustain profound spiritual practices while contributing to the development of civilizations across the world. Through this comparative analysis, we appreciate the depth and breadth of Buddhism's legacy, from grand historical achievements to the intimate details of daily devotion.

6. Keywords

Buddhist Civilization, Buddhist Culture, Characteristics, Religion

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A Comparative Study on the Representation of LGBTQ Characters in the Victorian and Contemporary British Literature

S.A.K.M. Subhasingha

Department of English Language Teaching, University of Kelaniya, Kelaniya, 11300, Sri Lanka.
madushanikalpani079@gmail.com

1. Introduction

Literature has long served as a mirror reflecting social attitudes towards sexuality and gender identity (Upendra & Sanjay, 2024). This study delves into the contrasting portrayals of LGBTQ characters in Victorian and contemporary British literature. The Victorian era, characterized by rigid social norms and religious conservatism, often relegated LGBTQ identities to the shadows. Literary representations were scarce, veiled in coded language, or presented as tragic figures facing ostracization and punishment. In contrast, contemporary British literature reflects a more progressive social landscape. LGBTQ characters are increasingly visible, with narratives exploring diverse sexualities and gender identities (Izienicki, 2022).

While a significant number of research exists on the representation of LGBTQ characters in both Victorian and contemporary British literature, a crucial gap remains in comprehensively analyzing the comparison between LGBTQ characters across these eras. Studies have meticulously explored the coded language and veiled desires present in Victorian works like "The Picture of Dorian Gray" by Oscar Wilde (1890) whereas contemporary British literature boasts a vibrant exploration of LGBTQ experiences, as seen in works by Alan Hollinghurst and Sarah Waters. However, a comparative analysis that delves into the transformation of LGBTQ identities and societal attitudes between these periods is often lacking (Schall & Kauffmann, 2003). The main objectives of this study are:

- To examine how LGBTQ characters are portrayed in Victorian literature compared to contemporary British literature.
- To identify the specific aspects of LGBTQ representation that differ or remain consistent across the two eras.
- To explore how the representation of LGBTQ characters reflects and critique the societal attitudes towards LGBTQ identities in both Victorian and contemporary British literature.

2. Materials and Methods

To analyze the representation of LGBTQ characters, this study employs a comparative approach examining works from Victorian and contemporary British Literature.

- Population and Sampling:

Table 1. The list of novles

Victorian Novels (1837-1901)	Contemporary British Novels (21st Century)
Teleny (1893) – Anonymous; attribute to Oscar Wilde	Shuggie Bain (2020) – Douglas Stuart
The Picture of Dorian Gray (1890) – Oscar Wilde	Milkman (2018) – Ann Burns
Carmilla (1872) – Sheridan Le Fanu	Girl, Woman, Other (2019) – Bernardine Evaristo

The study aimed to establish a comparative analysis between Victorian and contemporary representations of LGBTQ characters in British literature. The novels were selected under purposive sampling method. Three Victorian novels were chosen based on their critical acclaim and potential to reflect the social and cultural attitudes of the era towards LGBTQ identities. Also, three contemporary British novels were selected to provide a contrasting perspective and

explore how representations of LGBTQ characters evolved in the selected two literary landscapes. The selection process considered:

- Publication date – prioritizing novels published during Victorian era and 21st century to reflect the changing social landscape and increased openness towards LGBTQ themes.
- Authorial recognition – prioritizing novels by established Victorian and 21st century authors whose works have been recognized for their social commentary or exploration of relevant themes.
- Critical reception – choosing novels recognized for their literary merit and contribution to the British literature.

- Data collection method: The data gathering was done by employing a close reading methodology across both Victorian and contemporary British novels.
- Data analysis procedure: The findings of the study have been analyzed by using the qualitative method which is appropriate for the nature of the study.
- Theoretical Framework: In analyzing the collected data, queer theory of Lauretic (1990), an Italian - American feminist and theorist was used as a guiding model for the study.

3. Results and Discussion

Victorian and contemporary British queer novels offer vastly different perspectives on LGBTQ identities. While Victorian novels offer a glimpse into a hidden world, contemporary novels explore a broader spectrum of stories with greater social and legal acceptance. This study offers key differences between Victorian and contemporary British queer novels under four main breakdowns:

1. Portrayal of sexuality
2. Social context
3. Narrative focus
4. Writing style

Table 2. Findings and discussion

Key Differences	Victorian Novels	Contemporary British Novels
Portrayal of Sexuality	Homosexuality was illegal and socially taboo. Coded language, veiled desires, and tragic endings were common. Characters might be ostracized, imprisoned, or even driven to madness (Teleny, 1893).	Open exploration of sexuality is the norm. relationships, both happy and difficult, are depicted realistically. Stories explore a wider range of identities beyond just gay or lesbian (Shuggie Bain, 2020).
Social context	The rigid social structure heavily influenced narratives. Characters might have to choose between societal expectations and their true desires. Fear of exposure and legal consequences played a major role (Teleny, 1893).	Greater social acceptance of LGBTQ identities allows for stories with broader themes. Coming-of-age narratives, self-discovery, and navigating relationships in a more open world are common themes (Milkman, 2018).
Narrative Focus	Often focused on the secrecy and danger surrounding same-sex attraction. Plots might revolve around maintaining appearances or facing the consequences of being discovered (The Picture of Dorian Gray, 1890).	Explore a wider range of themes beyond just the struggle for acceptance. Characters might deal with internal conflicts, family dynamics, or navigating relationships in a more open world (Girl, Woman, Other, 2019).
Writing Style	Victorian writers use more veiled language and symbolism due to censorship and societal restrictions. Gothic elements and	Free use of language allows for more explicit portrayal of relationships. Explicit language allows writers to describe

	social commentary were often interwoven (Carmilla, 1872).	emotions, physical intimacy, and power dynamics in relationships with grater details. This can create a more realistic and intense reading experience (Shuggie Bain, 2020).

5. Conclusion

This study on the representation of LGBTQ characters in the Victorian and contemporary British literature reveals significant difference under for main points; portrayal of sexuality, social context, narrative focus, and writing style. Victorian literature, constrained by societal norms, often presented these identities through coded language, veiled desires, or tragic narratives. In contrast, contemporary British literature offers a wider spectrum of LGBTQ experiences, with characters navigating love, self-discovery, and societal challenges with more openness and agency. Further, exploration of LGBTQ representation could involve by examining several other areas of literature and different periods. Also, by comparing British portrayals with those in other cultures, further studies can identify how literature within different contexts shape LGBTQ identities.

6. Acknowledgment

I would like to express my sincere gratitude to my parents for their unwavering support and encouragement throughout this research.

7. Keywords

Contemporary British Literature, LGBTQ Characters, Novel Genre, Victorian Literature

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An Analysis of Common Errors in the Use of The Sinhala Language (Based on First-Year Students at Rajarata University of Sri Lanka)

Ven. O. Chandasiri and Ven. G. Vipula

Department of Language Studies, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka.
gvipula260@gmail.com

1. Introduction

The concept of language error analysis has been utilized in language teaching since around the 1960s. It is particularly applicable in teaching the academic writing of languages with diglosia, where it can be used under the high variety of those languages. Language errors can be identified as errors of competence and errors of performance. Errors of competence refer to general conditions of errors. Errors of performance are easily self-corrected. Because it is not possible to identify the errors within a single academic document, both competence errors and performance errors tend to be considered equal in value within the academic writing. Despite having a general awareness of the Sinhala language by students accustomed to academic writing after receiving school education and coming to the university level, this knowledge itself appears to be weak. Under this situation, there is a deficiency in systematic research conducted on language error analysis related to Sinhala academic writing. In a paper titled "Characteristics of slang in Modern Sinhala" by Ratnasiri Arangala (2009), the errors of several university lecturers and writers are explained. However, it does not encompass the language errors of contemporary university students. Various analyses of language errors are presented in newspapers and guidelines regarding correct usage. These are isolated explanations aimed at establishing Sinhala written language capability. They are neither macro nor micro. Moreover, there is a lack of attention to the causes in these error analyses. Although Wimal G. Balagalle (1996) has indicated several causes of language errors in the study of language and Sinhala usage, they do not cover all aspects of language error analysis. Therefore, there is a research space to analyze the current form of Sinhala writing usage comprehensively and meticulously, to analyze the reasons for the frequent occurrence of errors, and to investigate steps to avoid those errors.

The main objective is to identify what language errors students who have learned Sinhala for an extended period make. Additionally, identifying the reasons for common errors in language usage and developing strategies to create students who exhibit accurate language capability are secondary objectives. It is frequently observed that students currently learning in universities struggle to use correct Sinhala proficiently. Solutions proposed include that accurate writing should be taught in universities, while there are also assertions that the university's role is not to teach accurate writing. Advocates for the latter opinion argue that teaching correct writing is a school responsibility. However, it appears that this responsibility is not being adequately fulfilled at the school level. Accordingly, students often err in language usage. This situation is also evident in job placements. Hence, it is essential to identify the language errors frequently committed by students and the underlying reasons for those errors. Also, it is crucial to investigate what actions can be taken to equip students to engage in accurate writing.

2. Materials and Methods

This study focuses on first-year students enrolled in the general Sinhala course, a compulsory subject at the faculty of social sciences and humanities of the Sri Lanka Rajarata University. It randomly selects fifty students from this group. Their language issues reported in WhatsApp groups and their language capability are measured through specially tailored questions in a questionnaire. Responses they provided and language errors from their assignments were collected, examining individual language components. Data were collected in various ways, including offering different questions on each language component, posing a question that

measures all language components with one query, and creating questions to promote long-term engagement with such queries. Thus, qualitative and quantitative data were employed.

This research employs content analysis under qualitative research methods. Language error analysis for teaching scholarly writing under a high variety of Sinhala language utilizes the framework introduced by S. P. Corder (1967) and developed by J. Abbot (1980). Accordingly, errors were categorized as omission, addition, selection and ordering. The identified omission and addition errors were subjected to frequency analysis using Google applications. Errors related to the four categories mentioned were examined through specific questions aimed at gauging language capability. A questionnaire reviewing all language errors and related issues concerning copy editing was also used to analyze expression-related errors. The effective use of both competence and performance could be assessed through questions that allow for long-term engagement.

3. Results and Discussion

Common errors of Sinhala languages made by students include issues related to letter usage, orthography, word formation, word division, word order, sentence formation, semantic, the use of compatible words, and punctuation. Some students do not know the correct representations of letters such as "සෘ," "සෘෘ," "ඍ," "ඎ," "ඏ," "ඐ." Regarding orthography, they frequently misplace /aːdi/, /aːdiːn/, /dhuraya/, /karthru/. Many students show weaknesses concerning the use of /ya/ ending words. It appears they interpret /muːlashraya/ as a singular word and /mːlasra/ as plural. Additionally, they display confusion regarding the use of the suffixes /-wath/ and /-math/. Due to the presence of free sentence structures, they mistakenly order words in an unstructured manner. Incorrect placement of adjectives is often observed. Under the use of compatible words, phrases like /suba pæthum/ and /suba aluth awuruddak/ are commonly misused. During festive seasons, many students inquire about the correct usage of words such as /suba/Shubha/. Regarding punctuation, common mistakes can be seen in the use of semi colon and in the use of full stops. In teaching and assessment processes, while students provide successful responses to individual questions, it appears they frequently commit language errors when measured through collective questions. Thus, although they learn what they have been taught, they tend to err in practical usage. It is, therefore, confirmed that conducting assessments and practicing the use of language in a practical manner is essential.

4. Conclusion

Despite students having learned formal writing in Sinhala for a long time, there are many weaknesses in the language competence of Sinhala written language. These errors can be identified within areas such as letter usage, orthography, word formation, word division, word order, sentence formation, semantic, the use of compatible words, and punctuation. Each of these elements shows varying degrees of success when questioned individually. Some students respond with high success, while others are at a very weak level. Accordingly, some indicate frequent errors of competence, while others exhibit few errors of competence. Students who showed higher success regarding language competence errors also displayed weaknesses in questions relating to both competence and performance. Therefore, as a result of exam-based learning, they can achieve only the minimum or satisfactory level and do not develop their competence and performance due to the poorly constructed sample questions issued alongside. It becomes evident that ensuring questions relating to both competence and performance are integrated with practical language use can help reduce students' language errors significantly.

5. Keywords

Common errors, Formal writting, Language usage, Sinhala Language

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An Analysis of 'Sati' and its Historical Context and Influence on Spiritual Development

Ven. B. Nandabodhi

Buddhist and Pali University. nandaboodhi@gmail.com

1. Introduction

Buddhism, as a major spiritual tradition, emphasizes the role of sati, or mindfulness, as an indispensable element in the path to liberation. In Theravada Buddhism, sati is presented not only as a mental quality but as an ethical and meditative skill that supports the realization of Nirvana. While mindfulness has become popular in the Western world, it is often misunderstood as a tool for stress relief and psychological well-being. In Theravada Buddhism, however, mindfulness goes far beyond stress management, contributing directly to ethical purification and spiritual enlightenment. This study explores the concept of mindfulness in the context of Theravada Buddhism, focusing on its foundations in early Pali texts and its application to spiritual development. This analysis also contrasts traditional interpretations of sati with contemporary secular perspectives to reveal the limitations of modern adaptations. Sati, the Pali word for mindfulness, signifies more than present-moment awareness; it involves the cultivation of awareness that fosters wisdom, ethical integrity, and clarity. In Samatha (calming) and Vipassana (insight) meditations, sati serves as a steadying force, allowing practitioners to gain insight into the impermanent, unsatisfactory, and non-self-nature of phenomena. While modern interpretations emphasize mindfulness for well-being, this study seeks to clarify the philosophical significance and transformative potential of sati in its original Buddhist context.

2. Materials and Methods

This study utilizes a philosophical and textual analysis approach, centered on key suttas within the Pali Canon, such as the Digha Nikaya (Jaliya Sutta), Kiṁsukopama Sutta, and Mahasatipatthana Sutta. Primary commentaries, including Buddhaghosa's Visuddhimagga and Analayo Thero's work on Satipatthana, are examined to provide insights into sati's role in ethical and spiritual practices. Additionally, a discourse analysis contrasts Theravada interpretations with secular applications. This study further explores the linguistic and philosophical dimensions of key Pali terms, such as Sati, Satisampajañña (clear comprehension), and Satisambojjhaṅga (mindfulness as a factor of enlightenment), to demonstrate their interconnectedness with wisdom and ethical conduct.

3. Results and Discussion

The historical origin of the mindfulness and its formal and practical use is still far from the western world even today. The mindfulness is primarily described in the Buddha's time, especially in the teaching of Samatha and Vidarsana meditations leading to nirvana in early Buddhism. The Pali word "sati" means "mindfulness". It is further said from the interpretations that the determination towards a goal is called Sati. Mindfulness is a spiritual person whose nature is to remember what was said and done in the past without forgetting it. In Diga nikaya Jaliya sutta buddha explains Kathaṃ ca āvuso bhikkhu satisampajaññena samannāgato hoti? Idhāvuso bhikkhu abhikkante paṭikkante sampajānakārī hoti. Ālokite vilokite....(pe).... Evaṃ kho āvuso bhikkhu satisampajaññena samannāgato hoti (PTS DN 1.159). How does the monk stay calm? when the bhikkhu goes forward and comes back, he does it mindfully. Sati Chaitasika is used in Satipattanaya, Satindriya, Satibala, Sammasati and in describing

Bojjhaṅga it is shown as Satisambojjhaṅga Sometimes it is said that mindfulness is used in the sense of remembering (Makulewe, 2016). But Analayo Thero points out that the word "mindfulness" is used in the sense of helping to remember rather than reminding (Anālayo, 2003). By considering the following text from the Sekha Sutra, it can be explained that it helps to remember the mindfulness. "Satima hoti, paramena satinepakkena samannagato, chirakatampi chirabhasitampi sarita anussarita,(PTS Mi 353) , "What is remembered is reconciled with great memory and wisdom. What was done before and what was said before will be remembered again and again.") Mindfulness and Satisambojjhaṅga are explained. Nepakka in satinepakkena means wisdom. Accordingly, it means noble (paramena) mind. Mindfulness is born with or without wisdom. Knowledge is powerful when combined with wisdom. Hence wisdom was codified to signify power (Buddhaghosa, 2007). According to this text, it can be concluded that remembering what was done and what was said before is the result of being aware and being reconciled with wisdom. Thus the statement of Analayo Thero is confirmed. It should be noted here that if the previous mindfulness rested, it means remembering that same mindfulness.

Further, it is shown in Patisambhidamagga that mindfulness means being attentive to the present moment. Its characteristic is presence. In addition to this, in Patisambhidamagga gnana nirdeshaya, Sathokari gnana nirdeshaya is "Satisambojjhadgassa upattanatto abhinyayo"(PTS KN I 2.72). The meaning of reaching Satisambodhyangya's goal should be given, So It can be called attention. Parithi Pariggahatto, in "Parimukhang Sating Upattapetwa". Mukhanti Niyanatto. Satithi Upattanatto. Tena Vuchchati - "Parimukhang Sating Upattapetwa" (Anapanasatikatha)(PTS SN 54.1), Here Pari has the meaning of tightening. Mukha has the meaning of leading to transcend. Sati means approaching. It is said that consciousness is firmly taken and established as the Dhamma leading to Nirvana is. The mindfulness is described here. This mindfulness situation indicates a broader awareness of one's present moment. Because of this mindfulness, a clear memory of what is said and done is established and it is easy to recall. The Pali term opposite to Upatthitassati is Muttassati. When the present consciousness is absent, the mind is unable to concentrate on the purpose of meditation and is scattered. Therefore, in meditation, satimath is the main thing that helps to achieve the two peaks of Samatha Vidarshana. In the Kiṁsukopama sutta, the mindfulness is likened to a gatekeeper, as ' Dovārikoti kho bhikkhu satiyā etaṃ adhivacanaṃ. (PTS SN IV.194), (Mahana, doorkeeper is a name for this mindfulness.) The porter does not allow anyone who is not wanted to enter the city and allows the necessary people to enter the city (Kiṁsukopama sutta). And the people who go there will be guided to the desired place. The function of the gatekeeper is further explained in the Kinsukopama Sutra. Two swift messengers came from the south and asked the gatekeeper, 'Where is the lord of this city,' It is said, 'Lord, he is sitting at the crossroads in the middle of the city' (PTS SN IV.193). Here the two messengers are the names of the two Samatha Vidrashanas. Thus, it is clear that the gatekeeper named Samatha leads to Nirvana through the correct guidance for Samatha Vidarsha. This guidance is explained in the Brahmana Sutra of the SN, taking mindfulness as the protective charioteer (Sati arakkha Sarathi). This parable shows that the mindfulness is driving factor which pave the way Arya Marga until nirvana and protects the way. Thus, mindfulness is the main tool to achieve Nirvana in Buddhism. In the Mahasatipattana Sutra, the Blessed One points out the Satara Satipattana as the only way to eliminate suffering, which highlights the same above-mentioned idea. "*Ekāyano ayaṁ, bhikkhave, maggo sattānaṁ visuddhiyā, sokaparidevānaṁ samatikkamāya, dukkhadomanassānaṁ atthaṅgamāya, ñāyassa adhigamāya, nibbānassa*

sacchikiriyāya, yadidaṁ cattāro satipaṭṭhānā (PTS MN 1.56) has seen satipatthana as the only path to nirvana. In the Mahasatipatthana Sutta, mindfulness of the body, feelings, mind, and mental phenomena (Satara Satipattana) is presented as a singular path to end suffering. Here, sati signifies a state of mental clarity that eliminates attachment and craving, supporting practitioners on their journey to enlightenment. Additionally, Analayo Thero's interpretation of Satipatthana as "presence of mind" aligns with traditional views, confirming sati's foundational role in the Buddhist path. These insights suggest that sati, as right mindfulness, serves as a transformative power that enables ethical conduct and mental development, ultimately leading to liberation.

Sati here means mindfulness where the clinging and detachments are over. Pattana is setting out. Satipattana is the formation of mindfulness (Buddhaghosa , 2007). According to Analayo Thero (2003), the term Satipattana can be composed as Sati + Upattana. Accordingly, Sati means mindfulness (Smriti a Sanskrit term which also refers to memory or mindfulness.) and Upattana means being present (Anālayo, 2003). Here the four Satipattanas are Kayanupassana, Vagannupassana Chittanupassana and Dhammanupassana. When the mindfulness is in Satara Satipattana, it is taken as right mindfulness (Sammasati). This has been stated in the Vibhaṅgasutta of SN. The establish hment of the Satara Satipattana mentioned in the Maha Satipattana Sutra is described in this Sutra as the Sammasati (right mIndfulenss). `` Katamā ca, bhikkhave, sammāsati? Katama Cha, Bhikkhu, Sammasati? Idha, bhikkhave, bhikkhu kāye kāyānupassī viharati ātāpī sampajāno satimā, vineyya loke abhijjhādomanassaṁ; vedanāsu vedanānupassī -pe-; citte cittānupassīChitte Chittanupassi -pe-; Dhammesu Dhammanupassi -pe-; ayaṁ vuccati, bhikkhave, sammāsati.Ayan vuchchati, bhikkhave, sammasati. (PTS SN 5.9)" what is right mindfulness? It's when a mendicant meditates by observing an aspect of the body—keen, aware, and mindful, rid of covetousness and displeasure for the world. They meditate observing an aspect of feelings—keen, aware, and mindful, rid of covetousness and displeasure for the world. They meditate observing an aspect of the mind—keen, aware, and mindful, rid of covetousness and displeasure for the world. They meditate observing an aspect of principles—keen, aware, and mindful, rid of covetousness and displeasure for the world. This is called right mindfulness. The right mindfulness. The right Mindfulness is one of the eight noble path. (Ayameva ariyo aṭṭhaṅgiko maggo, seyyathidaṁ— sammādiṭṭhi sammāsaṅkappo sammāvācā sammākammanto sammāājīvo sammāvāyāmo sammāsati sammāsamādhi (PTS SN 5.422). In Mūlakasutta ,right mindfulness is enshrined by right wisdom, and Immersion is their chief. Mindfulness is their ruler. Wisdom is their overseer (PTS AN 5.107).

In Satipaṭṭhānasutta about lust it says, "Rāgassa, bhikkhave, abhiññāya cattāro dhammā bhāvetabbā.(PTS AN 2.256) For insight into greed, four things should be developed , that is four midnfulness practices as body, feelings citta and dhamma. In Paṭhamamaraṇassatisutta, 'appamattā viharissāma, tikkhaṁ maraṇassatiṁ bhāvessāma āsavānaṁ khayāyā'ti.(PTS AN III.306) , live diligently, keenly develop mindfulness of death, hence ending the defilements. Similarly in Dutiyamaraṇassatisutta Evaṁ bhāvitā kho, bhikkhave, maraṇassati evaṁ bahulīkatā mahapphalā hoti mahānisaṁsā amatogadhā amatapariyosānā(PTS AN III.308) Being mindful of death and practicing it this way can be really helpful. It leads to freedom from the fear of death and ultimately results in being free from it.

In Satibalasutta, (PTS AN II.142) buddha explain mindfulness is a power for ones. In Sikkhādubbalyasutta (PTS AN iv 457) it sasy to that to disobeying to 5 precepts is a weakness

for training midnfulness. In Ambapālisutta, "*Ekāyanvāyaṁ, bhikkhave, maggo sattānaṁ visuddhiyā sokaparidevānaṁ samatikkamāya dukkhadomanassānaṁ atthaṅgamāya ñāyassa adhigamāya nibbānassa sacchikiriyāya, yadidaṁ—cattāro satipaṭṭhānā*".(PTS SN 5.147) The four types of mindfulness meditation are like a path to finding inner peace. They're all about purifying ourselves, getting over sadness, ending pain, understanding the system, and reaching a state of peace. The life of the animal is extended due to not having this right mindfulness, taking the physical world as a regular pleasure and giving birth to defilements such as greed and hatred. By setting up the right mindfulness and reducing the meritorious party, the disgusting nature of the body becomes visible, the cling for the mundane world is removed and Nirvana is the focus. It should be noted that the establishment of Mindfulness is the path to liberation.

4. Conclusion

This study has highlighted the philosophical depth of sati in Theravada Buddhism, demonstrating that mindfulness transcends mere present-moment awareness. It is an ethical and spiritual practice that transforms mental qualities, guiding practitioners along the Noble Eightfold Path. In early Buddhist texts, sati is depicted as the "gatekeeper" of wisdom and purity, suggesting that mindfulness is both the means and the goal of spiritual practice. By reintegrating these ethical and transformative aspects into modern mindfulness practices, contemporary approaches can more fully embrace the potential of mindfulness for spiritual and personal growth.

5. Key words

Buddhism, meditation, mindfulness, sati

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A Pilot Study to Identify the Errors in Email Writing: With Reference to Selected First Year Commerce Undergraduates

H.K.P. Dineshika

Department of Commerce and Financial Management, Faculty of Commerce and Management Studies, University of Kelaniya. prdin191@kln.ac.lk

1. Introduction

Language is essential for both direct communication through conversations and indirect communication via platforms like Facebook, WhatsApp, and email. In Sri Lanka, English is taught as a second language and is integral to the national curriculum. Due to significant linguistic differences, learning English involves considerable effort. With technological advancements, email has emerged as a key communication tool in educational and professional settings, making the teaching of email writing skills increasingly important. Proper email etiquette, or netiquette, is vital for effective digital communication, minimizing misunderstandings, and enhancing perceptions, particularly in formal and academic contexts.
Understanding the distinction between errors and mistakes is crucial in language learning. Errors are systematic and result from gaps in a learner's knowledge of second language rules, while mistakes are random deviations occurring when learners haven't fully mastered a grammatical form. Error Analysis (EA) is a process used to identify, describe, and explain these errors by collecting and analyzing language samples. Various EA models offer different approaches to analyzing learner errors. Some models focus on surface structures, categorizing errors into omission, addition, and misformation (Dulay et al. (1982). Others provide comprehensive frameworks for error identification, categorization, and analysis of underlying causes (Ellis & Barkhuizen, 2005; Corder, 1981). This study utilizes Corder's (1981) model, effectively offering targeted classroom feedback.

Research on email writing errors has identified issues such as unclear writing and the necessity for formal training to enhance effectiveness. Further errors in email writing can be categorized as linguistic errors and formatting errors while email can be grouped as formal email and informal email. Studies have noted frequent errors in grammar and politeness, especially in student-teacher interactions. In Sri Lanka, while research on EA has largely focused on writing and speaking errors among university students, there has been limited focus on email writing. Hence, this study aims to fill that gap by analyzing the email writing errors of first-year undergraduates and answering the following research question: what types of errors do the students commit in writing formal emails?

2. Materials and Methods

The study used a mixed-method research design, combining qualitative and quantitative approaches, and involved 50 purposefully selected first-year undergraduates from the University of Kelaniya's Department of Commerce and Financial Management. Informed consent was obtained via e-consent forms, ensuring participants' respect, confidentiality, and anonymity. The study was conducted over four weeks with two-hour sessions each week. Questionnaire is distributed on the first day in order to identify the students' awareness and practices of formal email writing. Furthermore, a pre-test email writing task was given to identify initial errors and the students practice in sending formal emails. Students then received instruction on effective formal email writing techniques while incorporating errors that were

identified through the pretest and wrote two sample emails during the sessions for the given formal scenarios. A post-test formal email writing task was administered to assess improvements. Data were analyzed using Corder's (1981) EA model, which involved qualitative content analysis for error identification and description, and descriptive statistical analysis to tabulate findings.

3. Results And Discussion

By following the methods mentioned in the methodology section, the errors were classified and analyzed the errors using the qualitative content analysis method using Corder's model.

Email Script 5:

Subject: To arrange a meeting

Dear mam,

My Student no is XXX, I am fourth year student in university of kelaniya, I have to prepare a progress report, so i have many problems about it, so can you please arrange a meeting next week to discuss this with you.

In the email script 5, several errors were identified. The salutation "Dear mam" should be corrected to "Dear madam," a contracted form error. Capitalization errors include "university of Kelaniya," which should be "University of Kelaniya," and "i" instead of "I." Punctuation errors are present, as commas were used at the end of sentences instead of periods. Additionally, the article "the" is missing in the phrase "in University of Kelaniya." The email's body also lacks a proper conclusion and signature block, and the student used only a few sentences as one paragraph, which affects the overall structure.

Email Script 25:

Subject: DEAR MADAM

WORKING OUR INTERNSIP SO ASKING ARRANGE MEETING

I AM XXX. MY STUDENT NUMBER IS XXX. I AM STUDING IN KELANIYA UNIVERSITY, 4TH YEAR UNDERGRADUATE WORKING OUR INTERNSHIP DISCUSS MEETING

THANK YOU

YOURS SINCELERY

XXX

Email script 25 contains several notable errors. Firstly, the entire email is written in capital letters, which can be interpreted as expressing anger or dissatisfaction and is generally considered unprofessional. Additionally, there is a mix-up between the subject line and the salutation, with the salutation incorrectly used as the subject line and vice versa. The email also features incorrect or missing prepositions, such as in "asking arrange a meeting" (asking to arrange a meeting) and "I am studying in Kelaniya University" (I am studying at Kelaniya University). Spelling errors are present, including "internsip" (internship) and "sincelery" (sincerely). Furthermore, the email suffers from word order issues, resulting in a lack of clarity regarding the writer's intended message.

Table 1: Pre-test vs Posttest Frequency of errors

No	Type of error	Pretest		Post-test	
		Frequency	**Percentage %**	**Frequency**	**Percentage %**
1	Adverbs	9	1.6	8	2.9
2	Capitalization	50	8.6	14	5.1
3	Conjunction	27	4.7	15	5.4
4	Contracted forms	59	10.2	20	7.2
5	Definite/ indefinite articles	16	2.8	19	6.9
6	Errors related to tense	34	5.9	11	4.0
7	Genitive's	10	1.7	4	1.4
8	Missing subject line	19	3.3	9	3.3
9	No introduction or conclusion	27	4.7	12	4.3
10	No sender information	21	3.6	9	3.3
11	Prepositions	14	2.4	7	2.5
12	Punctuation	55	9.5	24	8.7
13	Repetition	12	2.1	5	1.8
14	Singular-plural forms	42	7.2	25	9.1
15	Spelling	102	17.6	56	20.3
16	Subject-verb agreement	23	4.0	10	3.6
17	Verb related errors	45	7.8	21	7.6
18	Word order	15	2.6	7	2.5

Table 1 compares pretest and posttest error frequencies, revealing learner progress trends and persistent difficulties. Spelling errors remained the most common, with a slight percentage increase despite a decrease in total numbers. Singular-plural errors decreased in frequency but increased in percentage, indicating continued challenges. Punctuation errors also declined in number but only slightly in percentage. Improvements were noted in verb-related and contracted form errors, while errors with definite and indefinite articles increased in frequency and percentage, suggesting these became more problematic. Capitalization and conjunction errors decreased significantly, though conjunction errors saw a minor percentage rise. Errors related to tense, subject-verb agreement, and omission of sender information improved overall, while less frequent errors such as those with the genitive case, missing subject lines, and word order showed reduced frequency but stable percentages, highlighting ongoing issues in these areas.

Table 2: Frequency comparison between questionnaires and actual email writing gathered data

Criteria	Pre-test		Post-test	
Use of formal greeting	Formal Greeting	29	Formal Greeting	35
	Informal/ without greeting	21	Informal/ without greeting	15
Use of formal closing	Formal closing	27	Formal closing	35
	Informal/ without closing	23	Informal/ without closing	15

Concise and clear email	Concise and clear	25	Concise and clear	35
	Not Concise and clear	25	Not Concise and clear	15
Formal tone	Formal tone	20	Formal tone	35
	Informal tone	30	Informal tone	15
Self-introduction and contact information	Yes	20	Yes	35
	No	30	No	15
Subject line	Missing Subject line	4	Missing Subject line	2
	Body in the subject line	3	Body in the subject line	2
	Vague subject line	29	Vague subject line	32
	Correct subject line	14	Correct subject line	14
Body paragraph	Few sentences	7	Few sentences	5
	One whole paragraph	33	One whole paragraph	15
	3 paragraph structure	10	3 paragraph structure	30

Table 2 highlights notable improvements in email writing practices over time. The frequency of formal greetings increased from 29 to 35, and formal closings rose from 27 to 35. There was also a significant increase in responses indicating conciseness and clarity, from 25 to 35, and a formal tone improved from 20 to 35. Self-introduction and contact information remained consistently high at 35 responses. Subject line accuracy improved slightly, and the email body structure advanced from a single paragraph to a well-organized three-paragraph format. These changes reflect a positive trend toward better adherence to formal email standards and overall email quality.

The study analyzed email writing errors among students using EA methods and SPSS, revealing that spelling errors were the most noticeable in both the pretest and posttest. In the pretest, errors in contracted forms were the second most noticeable, followed by punctuation, capitalization, verb-related, singular/plural, and tense-related errors. In the posttest, singular-plural errors became the second most noticeable, with other significant errors including prepositions, verb-related issues, contracted forms, articles, and capitalization. Adverbs were the least noticeable in the pretest, while the genitive "s" was the least noticeable in the posttest. These findings align with previous research, such as Konuk's (2021) and Adhikary's (2022) studies, which also identified common errors in email writing like poor style, carelessness, lack of clarity, and issues with spelling and punctuation. Other frequent problems included informal language, poor paragraph structure, and inadequate email etiquette. Despite some awareness of academic email conventions, students' actual email practices often reflected these deficiencies.

4. Conclusion

The study underscores a gap between students' understanding of email writing norms and their practices, highlighting frequent spelling, grammar, and formality errors. Educators should provide feedback to motivate improvements and offer early guidance on formal communication. The study's limitations include a small sample size of 50 first-year undergraduates from one department, which may affect the generalizability of the results.

Future research could benefit from a larger sample and additional data collection methods. The researcher also recommends investigating gender differences in Error Analysis (EA) within tertiary education. In conclusion, the study calls for a stronger emphasis on teaching email communication conventions in Sri Lankan tertiary education. It suggests addressing its limitations to enhance future research in this field.

5. Keywords

Email writing, Error analysis, First year undergraduates

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Analysing the Moral Duality of Men in Sumitrā Rāhubaddha's Literary Productions *Kandak Sema* and *Aga Pipi Mal*

R.N.C. Wedage

University of Ruhuna. naviniwedage@gmail.com

1. Introduction

The work of fiction, *Kandak Sema* and *Aga Pipi Mal* were authored by Sumitrā Rāhubaddha. *Kandak Sema* narrates the life of Nupa, a woman who marries an elderly Japanese man, Man Chan and how she transforms her life (Rāhubaddha, 2017). The general overview of the cultures of Japan and Sri Lanka can be viewed with reference to the narrative that is based on a true story. While *Aga Pipi Mal* is a story revolving around Ama Waidyasekara and her life encounters as a divorced woman and a single mother (Rāhubaddha, 2013). The main objective is to explore the portrayal of male characters in Sumitrā Rāhubaddha's novels, *Kandak Sema* and *Aga Pipi Mal*, concentrating on their moral duality in their interactions with women, aiming to understand the underlying social and cultural norms. This analysis examines to address the research problem of understanding how Sumitrā Rāhubaddha's portrayal of moral duality of male characters in *Kandak Sema* and *Aga Pipi Mal*, analysing how these characters maintain respectable societal images while concealing manipulative motives towards women, and how this indicates societal expectations.

2. Materials and Methods

To obtain the data, the study conducted a qualitative research and the information was extracted from the novels *Kandak Sema* and *Aga Pipi Mal*, youtube videos and research articles.

3. Results and Discussion

In *Kandak Sema,* Sumitrā Rāhubaddha skillfully reconstructs male characters who are not only obscure but also sinister. Realistic characters like Jayantha and Nimal illustrate how certain amount of men work towards managing societal roles while attempting to satisfy personal desires. By their interactions with Nupa, an enigmatic, and authoritative character, the protagonists reveal the ethical ambiguity that shapes their conduct. Nupa is being utilized by these men to pursue their desires and objectives and this shows that these men are willing to do anything and justify anything in order to get what they want even if it means compromising the moral standards of the society (Rāhubaddha, 2017). Indeed, they must conform to the conventional societal norms and can be seen as respectable members of their society. Nevertheless, hidden behind this veneer is an urge to dominate and be satisfied at any cost and it is through such people that they use others, especially Nupa. It portrays a conflict as to how virtuous these characters are in the public domain and how far they are willing to bend to say the truth. Sumitrā Rāhubaddha portrays the character of Ama Waidyasekara, a woman who experienced the duality of men corresponding to Nupa in the novel *Aga Pipi Mal.* Several male characters such as Jayaweera, Edmund Weerapana, Nalin Dissanayake are drawn towards Ama for their ulterior motives using her divorce as a reason. The objectification of Ama as powerful and authoritative demeans by these men in their intentions, which are selfish. Ama Waidyasekara turns into an immoral character for these men, a desire to advance their self-interests, desires or other capacities (Rāhubaddha, 2017). By means of these interactions, Rāhubaddha represents the struggle between the genuine appreciation and the lies with

underlying motives. The men surrounding the heroine are a typical example of false gentleman–sects, who attempt to disguise their intentions behind the mask of good manners and morality; thus, the dual nature of male characters are enriched (Mawelle, 2023).

4. Conclusion

The inner conflict refers to the struggle that is depicted in men as they try to balance the good and evil within themselves while the outer conflict is the presentation of decisions that are made based on the environmental factors that are present in the society. Altogether these forces reveal an element of the conflict between the individual and the society. Their actions can be seen as a correspondence to the full societal pressure of men to stay conservative outside while they themselves have impulsive cravings, violating their ethical sense within. Analysing the works of Rāhubaddha, one can conclude that moral duality is anything but a simple phenomenon, in fact, it is an exceptionally human one, which is influenced by internal and external factors. Thus, the moral duality is also reflected in women's relations with men in both societies, are seen as protectors with honorable qualities, although they also dominate, control, use them, which corresponds to the norms of that time. According to culture, such duality is evident in the competing tasks where men either enforce or violate ethical conduct with regard to women.

5. Acknowledgment

All the people who assisted me in successfully completing this research have my sincere gratitude. In particular, I would like to thank my supervisors, family, friends for their support and motivation throughout this research.

6. Keywords

Men, Moral duality, Society, Women

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Bridging the Gap: The Role of Remedial Instruction in Improving English Language Skills among University Students with Low Second Language Proficiency

R.M. Dhanapala

Department of English Language Teaching, Rajarata University of Sri Lanka. rmdhanapala@yahoo.co.uk

1. Introduction

In the globalized world of higher education, English language proficiency has become a critical factor for academic success. Students in higher education face significant challenges when instruction is delivered in a second language, such as English. These students must grasp complex concepts and expand their vocabulary, which can be particularly demanding. This burden often leads to demotivation, even among diligent students, and can negatively impact their academic performance and grades (Shamim & Rashid, 2019). Furthermore, university students who lack strong English language skills often face significant challenges in understanding course content, participating in discussions, completing assignments, and achieving academic excellence. The transition to university-level education can be particularly daunting for these students, as it intensifies existing language barriers and leads to a cycle of academic underperformance.

To address these challenges, remedial instruction has emerged as a vital strategy for improving English language skills among low-proficiency students. Remedial programs are designed to provide targeted support, enabling students to build the necessary language foundation to succeed in their academic endeavors. Students felt more at ease and motivated when participating in remedial classes than in ordinary classrooms (Ghaithi &Behforouz, 2023). By focusing on both linguistic and academic skills, remedial instruction not only helps students overcome language barriers but also boosts their confidence and motivation, leading to improved academic performance.

The significance of remedial instruction in higher education is undeniable. Research indicates that students who engage in remedial programs often experience marked improvements in language proficiency and academic performance (Aldaihani et al., 2020; Yuliandasari & Kusriandi, 2018; Armita, 2019). Remedial English programs are particularly effective in addressing the gap between students' existing language skills and the rigorous demands of university-level coursework. Remedial programs are strategically designed to support low-proficiency students, offering targeted instruction that helps them meet the linguistic challenges of higher education. By doing so, they ensure a more equitable academic environment, giving all students the opportunity to succeed, regardless of their initial proficiency levels.

In the context of English as a Second Language (ESL) and English as a Foreign Language (EFL) learners, the value of remedial instruction is well-documented. Research consistently shows that well-designed remedial programs can significantly enhance students' language abilities, which in turn boosts their academic performance and confidence. However, the effectiveness of these programs is influenced by several factors, including the curriculum design, program duration, and the specific needs of the students they serve.

Low-proficiency ESL learners face a unique set of challenges in higher education. Beyond the academic difficulties, these students often experience psychological stress and social isolation, which can further hinder their academic progress (Zhou & Zhang, 2014). Therefore, the need for effective remedial instruction is a matter of academic support and promoting student well-being and integration into the university community.

This study aims to assess the effectiveness of the Remedial English Programme conducted at

the Faculty of Management Studies and the Faculty of Social Sciences and Humanities of the Rajarata University of Sri Lanka for students with low English language proficiency. The program runs for three months, with classes held three days a week, and English is taught for two hours each day. It is designed to enhance students' language skills through targeted instruction and practical language exercises. The findings of this study will contribute to the existing literature on remedial instruction and provide valuable insights for educators and policymakers seeking to improve the design and implementation of similar programs. In doing so, the research aims to bridge the gap between students' current language abilities and the academic demands of higher education, ultimately supporting their journey toward academic success.

2. Materials and Methods

This study employs a quasi-experimental research design to assess the impact of a Remedial English Program. Quasi-experimental designs are often used to evaluate the effects of interventions or treatments in situations where random assignment of participants is not feasible. Among the various types, the nonequivalent comparison groups design is one of the most fundamental. Unlike the classic experimental design, this approach does not involve random assignment of participants to groups. Instead, it typically utilizes pre-existing groups, making it a practical choice for educational settings where such groups are already formed (Rubin & Babbie, 2017).

Participants: The study involved a selection of university students identified as having low English language proficiency at the semester-end ESL paper: 31 students from the Faculty of Social Sciences and Humanities and 24 students from the Faculty of Management Studies. These students were enrolled in a three-month Remedial English Programme designed to improve their language skills. The selection criteria included students who scored low marks on a diagnostic test administered before the commencement of the program.

Pre-test and Post-test Design: The research utilized a pre-test and post-test design to assess the effectiveness of the remedial instruction. Before the commencement of the program, all participants took a standardized pre-test to measure their initial English language proficiency levels. This test covered key language skills, including reading, writing, and grammar.

Remedial Instruction Program: Over the course of three months, participants attended remedial English classes, which were tailored to address their specific areas of weakness. The instructional approach was intensive and focused on interactive learning, practical language usage, and targeted exercises. The curriculum was designed based on diagnostic test results and included activities aimed at enhancing grammar, reading comprehension, and written communication skills.

Post-test: At the conclusion of the program, participants took a similar standardised test (post-test) as the pre-test. This post-test was administered to gauge the progress made by the students over the three-month period. The test results were then compared to the pre-test scores to determine the efficacy of the remedial instruction.

Data analysis: The pre-test and post-test scores were statistically analysed to assess the improvement in language proficiency. A paired t-test was employed to determine whether the changes in test scores were significant, indicating the effectiveness of the remedial instruction.

3. Results And Discussion

The Table 1 provides a comprehensive overview of the effectiveness of the remedial instruction program in improving English language skills among university students with low English language proficiency. It summarizes the results of pre-test and post-test evaluations across four

key areas: Total Score, Grammar, Reading, and Writing. The table includes mean values, mean differences, standard deviations, p-values, and significance levels for each measure.

Table 1. Overall and Skill-wise Analysis

Measure/Skill	Pre-test Mean	Post-test Mean	Mean Difference	Standard Deviation	p-Value	Significance
Total Score	20.72	45.69	24.97	9.90	< 0.0001	Highly Significant Improvement
Grammar	8.72	23.66	14.94	5.52	< 0.0001	Highly Significant Improvement
Reading	10.69	15.75	5.06	5.00	0.00000269	Significant Improvement
Writing	1.31	6.28	4.97	2.47	< 0.00000000001	Significant Improvement

As indicated in Table 1, the overall score shows a significant improvement from a pre-test mean of 20.72 to a post-test mean of 45.69, resulting in a mean difference of 24.97. With a standard deviation of 9.90, the p-value for this improvement is < 0.0001, indicating a Very Highly Significant improvement. This suggests that the remedial instruction has had a substantial effect on the students' overall English language proficiency.

In the grammar component, the pre-test mean was 8.72, which increased to 23.66 in the post-test, showing a mean difference of 14.94. The standard deviation here is 5.52, and the p-value is < 0.0001, which falls into the Very Highly Significant category. This indicates a strong and statistically significant improvement in students' grammatical skills, underscoring the effectiveness of remedial instruction in this area. For reading, the pre-test mean was 10.69, with a post-test mean of 15.75, resulting in a mean difference of 5.06. The standard deviation is 5.00, and the p-value is 0.00000269, categorized as Significant Improvement. This reflects a meaningful improvement in reading skills, though not as pronounced as in grammar or overall score. The writing scores improved from a pre-test mean of 1.31 to a post-test mean of 6.28, with a mean difference of 4.97. The standard deviation for writing is 2.47, and the p-value is < 0.00000000001, which is a Significant Improvement. This indicates a significant enhancement in students' writing abilities, similar to the improvements observed in overall and grammar scores.

4. Conclusion

The remedial instruction program led to a significant overall improvement in students' English language skills, as evidenced by the substantial mean differences and extremely low p-values across all measured areas. The most notable gain was in grammar, where the improvements were highly statistically significant, highlighting the program's strong effectiveness in the area. Although reading and writing skills showed substantial progress, the improvement was slightly less pronounced, indicating a potential need for additional focus. The findings confirm the program's effectiveness in enhancing English language proficiency. Similar studies by Zhai and Skerl (2001) and Sheu et al. (2007) in remedial English Instructions have shown comparable results. However, similar studies conducted in the Sri Lankan context were not found in the literature.

5. Keywords

ESL learners, interactive learning, language proficiency, remedial instruction

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Common Interlingual Errors Among the Second Language Learners: A Case Study with Special Focus on the ESL Undergraduates of the Faculty of Applied Sciences, Rajarata University of Sri Lanka

P.L.N. Abeywardena, H.P.K. Pathirana, A.M.C.K. Abeysekara and A.A.M. Nizam

Department of English Language Teaching, Rajarata University of Sri Lanka. keshanirjt@gmail.com

1. Introduction

Numerous studies on error analysis have been carried out with English as a second language (ESL) learners, helping to identify common errors and enhance both learner and teacher awareness for better correction of these errors. This study aims to explore errors caused by L1 interference among undergraduates learning English as a second language, with the goal of increasing error awareness and addressing these issues through targeted feedback. The survey employed error analysis to examine learners' written output and contrastive analysis to identify areas of difficulty and interference. The study focused on written English due to its importance in academic and professional contexts. Emphasizing written English was also pertinent because the participants were Applied Science students in their undergraduate programs. The findings revealed that lexical errors were the most frequent and affected the largest number of participants, followed by mechanics, grammatical and semantic errors. Error Analysis (EA) shows that learners of English as a Second Language often make errors influenced by their L1, a phenomenon referred to as interlanguage. Sinhala/Tamil L2 learners of English frequently make interlingual errors stemming from the differences between their mother tongue and English. This issue has been documented in various studies and will be further explored in this study, which examines writing errors among the new entrants to the faculty of Applied Sciences, Rajarata University of Sri Lanka.

2. Materials and Methods

The error analysis in this study followed Corder's (1974) five steps: (a) collection of a sample, (b) identification of errors, (c) description of errors, (d) explanation of errors, and (e) evaluation of errors. Accordingly, a sample of 60 students was selected from the ESL undergraduates of the Faculty of Applied Sciences upon their entry to the faculty. Two carefully selected writing tasks were given to the target group of students with the aim of identifying and analyzing the errors caused by L1 interference. Samples collected from the learners were carefully examined for both intralingual and interlingual errors and only interlingual errors were considered as materials for the study. Collected data were analyzed using the quantitative data analysis method by describing, summarizing and comparing data and the observations were noted down.

3. Results and Discussion

This study focuses on learner errors caused by L1 interference when learning English as a second language (L2) and the results are based on the writing errors of the participants analyzed according to Corder's Taxonomy model which describes four types of errors, namely: grammatical, lexical, semantic and mechanics errors. The survey investigated several areas of interest like identification and analysis of errors as well as the comparison of results between errors and the number of participants.

The following table shows an analysis of each type of error in detail.

Table 1. Analysis of L1 Interference Errors in ESL Learners' Writing Based on Corder's Taxonomy

Error Type	Error Category	Number of Participants who made the error	Percentage of total participants (out of 60)
Grammatical Errors	Subject verb agreement	08	13.33
	Verb drop	14	23.33
	Verb tense	10	16.66
	Word order	13	21.66
	Negation	24	40 .00
	Affixation	18	30.00
Lexical Errors	Prepositions	49	81.66
	Determiners	11	18.33
	Nouns	16	26.66
	Relative clauses	24	40.00
	Conjunctions	09	15.00
Semantic Errors	Word choice	27	45.00
Mechanics Errors	Capitalization	07	11.66
	Spelling	53	88.33
	Punctuation	55	91.66

Classification of errors identified after analyzing the data is illustrated as a percentage of the total number in the following graph.

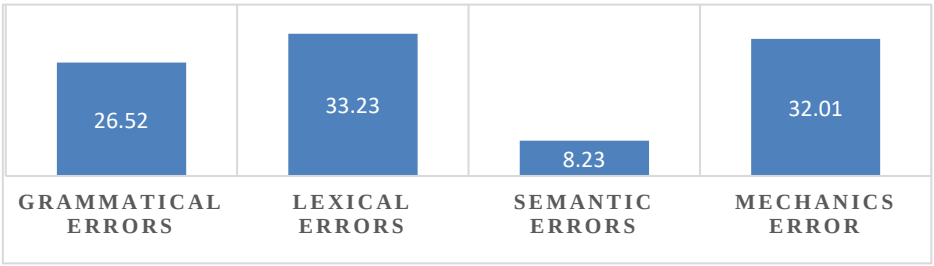


Figure 1. Distribution of Errors Among ESL Learners Due to L1 Interference

According to the findings of the survey, Lexical errors, which account for 33.23 of all, were identified as the linguistic area with the highest number of errors among the participants. Out of the lexical errors, the incorrect use of English prepositions was found to be the highest category of errors among the participants. This is due to the crosslinguistic influence of their

mother tongue on the target language. For instance, most of the participants had used the preposition "to" or "for" with the verb "participate" instead of "in" used in English because according to their mother tongue (Sinhala/Tamil) it is "to" that goes together with "participate. Relative clauses were identified as the second highest category that created problems for ESL learners of Sinhala/ Tamil due to the difference in position of the relative clause in English language and their mother tongue. They tend to use the relative clause in the wrong position owing to crosslinguistic interference. A few of the mass nouns in English are considered to be count nouns in Sinhala. As a result, there is a tendency among the Sinhala speakers to use such nouns in plural sense. For example, the noun "furniture" is pluralized as "furnitures" because the word furniture has a plural noun in Sinhala. Regarding the errors of determiners, the use of inappropriate determiner or omission of it, especially the indefinite article, was common among the participants. The analysis of data revealed that this was mainly caused by L1 interference mostly among the Sinhala speakers than among the Tamil speakers as the article is adjacent to the noun in Sinhala whereas it is not so in the target language. The survey revealed some errors regarding the use of conjunctions as well, mainly due to its position. The position of the conjunction in Sinhala and Tamil is similar, yet it is different in English, the learners whose L1 is Sinhala or Tamil, therefore, tend to use the conjunction at the end of the respective clause even though it should actually be placed at the beginning according to the underlying grammar rules pertaining to English language.

Mechanical errors composed 32.01 percent of the total number of errors identified among the participants. The study revealed that the majority of them were punctuation errors due to the fact that the use of certain punctuation marks is not the same in L1 and L2. Moreover, a few punctuation marks available in English, such as dash and colon, are not commonly used in Sinhala / Tamil. As far as spelling errors are concerned, the findings of the survey revealed that such errors were caused by attempting to make English a phonetic language like Sinhala. As a result, majority of the participants had attempted to spell certain English words in the same way that they are pronounced. Capitalization errors were also found to be common among the participants due to their lack of knowledge of capitalization because the concept of capitalization is not present either in Sinhala or Tamil.

The analysis of the data revealed that grammatical errors among the participants accounted for 26.52 percent of the total. The reason for the high percentage of errors is the variation of underlying rules of grammar among different languages. The findings of the study evident that the errors are common among most of the Sri Lankan ESL learners in such areas as negation, affixation, verb drop, word order, verb tense and subject verb agreement due to crosslinguistic interference. For example, the selection of antonym prefixes creates problems for most of the Sri Lankan ESL learners due to the complexity of choosing such prefixes in English. On the contrary, the two languages: Sinhala and Tamil have a few antonym prefixes for them to choose from. The same is true for the derivation of nouns in English compared to Tamil and Sinhala. Furthermore, the survey disclosed that a considerable number of Sri Lankan ESL learners have a misconception regarding the construction of negative sentences due to L1 interference. Hence, they tend to add the negative inflexion "not" to the main verb in some cases as in their mother tongue instead of adding it to the helping verb, the practice in the English language. The drop of "be" verbs, when used as full verbs, was also found to be common among the participants for they don't use it at all in their L1. Apart from that it was also observed among the participants of the survey to deviate the word order of an English sentence due to direct translation from L1. It is, for instance, "We yesterday went to temple." In place of "We went to temple yesterday." Misuse of verb tenses was the other observation made when analyzing

the writing output of the participants. Most of them used the simple past tense where the present perfect tense is appropriate in English due to crosslinguistic interference.

Semantics deals with meaning, hence, semantic errors by the participants were mostly due to the incorrect choice of words to suit the context. Most of the L2 learners very often attempt to translate utterances from their mother tongue to the target language. This situation can attribute to make semantic errors due to mismatch of certain words. For instance, “do” and “make” may create problems for Sinhala-speaking ESL learners in certain contexts.

4. Conclusion

Both interlingual and intralingual errors are common among ESL learners. Of the two, the former is caused by a phenomenon known as interlanguage which takes place within the learner himself or herself. Interlanguage is one of the stages of L2 learning where the learner is in between L1 and L2. Interlingual errors could be remedied through methodical teaching of underlying grammar rules of the target language before fossilizing them.

5. Acknowledgement

We acknowledge the undergraduate students (2022/2023 batch) of the Faculty of Applied Sciences, Rajarata University of Sri Lanka for their invaluable support extended to us when collecting data for the survey.

6. Keywords

Errors, ESL, Interlingual

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Development of Buddhist-Christian Dialogue in Hong Kong

U. Pemananda

The University of Hong Kong u.pemananda_766@connect.hku.hk

1. Introduction

Buddhist-Christian studies have been a major focus of scholarly research and teaching since the end of the 20th century. It is becoming a burgeoning field in many parts of the world where many local communities are religiously heterogeneous. Increasing of Buddhist-Christian dialogues in many parts of the world anticipate hints for consolidation of interreligious co-existence. Research related to the Buddhist-Christian encounter uncovers various facets of the Buddhist-Christian dialogue; historical background of both amicable and unfavourable responses; theological, and philosophical compressions between Buddhism and Christianity; Buddhist, and Christian views on contemporary societal issues; development of Buddhist-Christian encounter in Asian and Western worlds; and biographies of prominent religious personalities, and scholars in the field are some of them. Yet, Buddhist-Christian dialogue still requires depth investigation pertaining to divergent forms of Buddhist-Christian dialogue in different social and cultural settings of the world. Identification of divergent modalities of Buddhist-Christian dialogue helps further the development of this phenomenon methodologically, and pragmatically.

The aim of this paper is to explore the implementation of Buddhist-Christian dialogue within Hong Kong society and identify the unique characteristics of such interfaith interactions in this context. Historically, in China, with the waves of western imperialism, Buddhist-Christian encounters have ebbed and flowed: on one hand, bitter experiences due to religious proselytization, polemical writings, and ridicule responses, and on the other hand, amicable relationships between the two religions (Lai, 2001). These aspects of religious history in mainland China have impacted Hong Kong to some extent (Home Affairs Bureau, 2016; Kitagawa, 1955). Yet, the religious milieu in Hong Kong is relatively different from mainland China; this distinction is rather apparent in terms of Buddhist-Christian encounter to which less attention has been given.

As one of the most densely populated places in the world, Hong Kong consolidates inter alia the fundamental right of religious freedom. Buddhism, Taoism, Confucianism, Christianity, Islam, Hinduism, Sikhism, and Judaism exhibit a rich variety of religiosity in Hong Kong. As religions, Buddhism and Christianity (both Catholicism, and Protestant) play a significant role in Hong Kong society. Several striking factors pertaining to the interreligious relationship in Hong Kong can be identified; Buddhist-Christian dialogue takes place as a part of the interreligious encounter, and it has been carried out uniquely.

Even though interreligious co-existence in Hong Kong is well constituted, less attention has been paid to recognizing how it has been carried out. This paper investigates how has Buddhist-Christian dialogue been carried out in Hong Kong society, and what are the distinctive aspects of Buddhist-Christian dialogue in Hong Kong. This cross-case study helped to identify a detailed typology of Buddhist-Christian dialogue in modern Hong Kong society. Using an exploratory approach of case study, each case was examined. The thematic data analysis discovered four types of Buddhist-Christian dialogues in Hong Kong:

- Formal multilateral dialogical forum,
- Spiritual dialogue in public,
- Spiritual dialogue among small faith communities, and
- Dialogue in interreligious chaplaincy services.

From Oddbjørn Leirvik's philosophical approach of interreligious dialogue which was inspired by Martin Buber's and Emmanuel Levinas' philosophies on dialogue, these four types of dialogues were further viewed as "spiritual dialogue" and "necessary dialogue".

Compared to the existing literature on Buddhist-Christian dialogue, the findings of this case study are in line with many available studies. Additionally, the fact that the dynamic of Buddhist-Christian dialogue overlaps multilateral interreligious dialogue is uniquely well rooted in Hong Kong. It postulates the extent of the space for religious plurality and religious inclusivism in Hong Kong whereby a rich typology of Buddhist-Christian dialogue is constituted. Finally, the study suggests viewing if the typology of Buddhist-Christian dialogue would be a distinctive dynamic of multilateral interreligious dialogue in Hong Kong. Every modality of Buddhist-Christian dialogue may have its sole purpose, but ultimately, every model constitutes interreligious co-existence. The study concludes that freedom of religion and therefore interreligious co-existence are realistic with underlining divergent mechanisms of interreligious dialogues; the typology of Buddhist-Christian dialogue in Hong Kong attests to this assumption.

2. Methodology

Being a qualitative research endeavour, the study employed a case study approach within the context of Buddhist-Christian dialogue. Through the case study method, which helped contextualize a phenomenon, we explored some groups of people practicing interreligious dialogue. Following the principles of case studies, it selected cross-case and was limited to an embedded case study whereby it examined some aspects of cases pertaining to Buddhist-Christian dialogue in Hong Kong. The qualitative data, including interviews, was collected from 2022 to 2023. The study also limited its examination to four cases that were selected from Hong Kong society through the purposive sampling method. They were: 1) The Colloquium of Six Religious Leaders in Hong Kong, 2) RTHK. TV 31 – Buddhist-Christian dialogue series, 3) Interreligious dialogue group hosted by Sri Lankan Buddhist Cultural Centre in Hong Kong, and 4) Interreligious Chaplaincy of Queen Mary Hospital, Hong Kong. Oddbjørn Leirvik's philosophical approach to interreligious dialogue which was inspired by Martin Buber's and Emmanuel Levinas' philosophies of dialogue anticipates two types of interreligious dialogue: spiritual dialogue and necessary dialogue. For the discussion, this philosophical outlook was used as the conceptual framework. The study applied thematic analysis as its data analysis method. Even though the findings were rich for presenting a detailed typology of Buddhist-Christian dialogue the validity of the findings could not be generalized because of the limitation of an exploratory case study.

3. Findings and Discussion

This exploratory case study identified four types of Buddhist-Christian dialogical approaches: They are: 1) The Colloquium of Six Religious Leaders in Hong Kong, 2) RTHK. TV 31 – Buddhist-Christian dialogue series, 3) Interreligious dialogue group based in Sri Lankan Buddhist Cultural Centre in Hong Kong, and 4) Interreligious Chaplaincy of Queen Mary Hospital, Hong Kong. Four themes were made based on these four types and analysed data accordingly.

- Formal multilateral dialogical forum

The Colloquium of Six Religious Leaders in Hong Kong which was established in 1978 has been carried out with the purpose of "promoting exchanges, unity, and cooperation among different religious groups" (CRS.CUHK, 2022). It is a driving force of religion and makes practical contributions to Hong Kong society. According to the historical documents of the Colloquium which are published by the Department of Cultural and Religious Studies, the Chinese University of Hong Kong, representatives of six major religions—Buddhist, Taoist, Confucian, Catholic, Christian, and Islam—have been maintaining an official dialogical network and thereby issued official letters to the public, joint Lunar Festival announcements, minutes of conversation sessions over the past 44 years. The documents consist of special issues related to Hong Kong society and more than 3,400 photos of the Colloquium´s events (CRS.CUHK, 2022). These records display the attribute of exchange and communication among religious leaders for cooperation and solidarity.

- Spiritual dialogue in public,

RTHK TV 31 (Chinese: 港台電視31), a 24-hour Chinese-language television channel in Hong Kong has been broadcasting a Buddhist-Christian dialogue series over the past couple of years. According to a Buddhist nun, Venerable Chuan Deng who was a co-host of the series, themes for each episode were intentionally set up with spiritual goals (Interview-1, 2022). Adversity vs peaceful mind, Celibate vs married, life vs death, and heaven vs hell were some of those episode themes.

- Spiritual dialogue among small faith communities

Interreligious discussions take place among different faith communities in Hong Kong. They are apparent as multilateral. Sri Lankan Buddhist Cultural Centre in Hong Kong hosts this type of dialogue group. Their discussion predominantly focuses on theological and philosophical exchange for creating space for harmonious existence (Interview-2, 2022). Even though this group is relatively small, once a week gathering of the group reflects an active continuation of dialogical relationship.

- Dialogue in interreligious chaplaincy services.

From a more general perspective, religious chaplaincy services in Hong Kong encompasses services to hospitals, schools, families, and prison. These volunteer services include pastoral care, visits, teaching, counselling, religious worship, and recreational activities (Hong Kong Correctional Services, 2022). In Queen Mary Hospital of Hong Kong, chaplaincy service is implemented with a collaborative network of religious leaders from different religious communities. These religious leaders maintain a frequent conversation for the sake of better chaplaincy to patients regardless of their faiths and beliefs.

Interreligious dialogue is defined by Oddbjørn Leirvik focusing on its description of a particular activity. His work, Interreligious Studies, distinguishes "spiritual" and "necessary" dialogue referring to its connection to interreligious relationship (Leirvik, 2014, p. 18). Whereas the notion of spiritual dialogue takes place in the practice of spiritual coexistence, necessary dialogue implies interfaith dialogue initiated in and by civil communities. The coordination and interaction among the six religions, and the constant communication of interreligious chaplaincy witness to necessary dialogue. In his initial concept, "I-Thou", Martin Buber states that self and other can be uttered together and mutually, and therefore, human

being is an implicitly dialogical being (Nikulin, 2006, p. 18). In line with this view on dialogue, the spiritual Buddhist-Christian dialogue series can be viewed as a mutual utterance from which "I-Thou" is raised together. Four types of interreligious or Buddhist-Christian dialogue groups may have unique aims and objectives. Nevertheless, they simultaneously aspire and work for the united efforts to build a harmonious and healthy society and people's hearts.

4. Conclusion

The greatest deal of the interreligious dialogue is religious harmony and therefore it was used as an underlined thesis of this study. The religiously heterogeneous society of Hong Kong is where religion plays a significant role in religious harmony and social well-being. For that purpose, the typology of Buddhist-Christian dialogue is imperative. In terms of process, this case study explored how Buddhist-Christian dialogue was carried out in Hong Kong. And outcome presented how it worked within four types of Buddhist-Christian dialogue. The finding serves to the philosophy of interreligious dialogue accentuating striking attributes of Buddhist-Christian typology in Hong Kong.

5. Keywords

Buddhist-Christian dialogue, Hong Kong, Interreligious Relationship, Typology of Dialogue

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Exploring the Content for Content and Language Integrated Learning (CLIL) Programs for Social Sciences and Humanities

M.D.S.S. Kumara, D.A. Wehella, H.P.K. Pathirana, R.M.L.C. Kumari, A.M.C.K Abeysekara, T.S. Abeynayaka, and T.S. Rajapaksha

Department of English Language Teaching, Rajarata University of Sri Lanka, Mihintale. deltcentrearusl@gmail.com

1. Introduction

Content and Language Integrated Learning-CLIL (Coyle et al., 2010) is a method of teaching a language using the content of various subjects taught in educational institutions. It is an integrated approach to language learning based on the premise that language must be used as a medium for learning content, and content as a resource for language learning. In this method of instruction, attention is shifted from learning a language by itself to learning a language through a relevant learning context. Thus, communicative competence is achieved in the act of learning specific topics such as Science, Economics, Management etc.

CLIL is based on the assumption that learners learn a second language best when they are given a language in a meaningful, contextualized form with the primary focus on acquiring information. Since English Language Teaching (ELT) programs in Sri Lankan universities primarily focus on preparing learners for academic studies, CLIL programs are ideal for this purpose. The best CLIL programs require a close collaboration between the language teacher and the content teacher, who are experts in one's own field. The language teacher's responsibility in a CLIL program is to teach the target language, support the content teacher through the introduction of vocabulary and functional language relevant to the target subject, and encourage critical thinking (cf. Bridge Education, 2002-2023).

The majority of the ELT programs conducted at the faculties of Agriculture, Applied Sciences, Management Studies, Medicine and Allied Sciences, and Technology of the Rajarata University of Sri Lanka, of which the primary medium of instruction is English, show features of CLIL programs. In contrast, the ELT programs conducted at the Faculty of Social Sciences and Humanities of the Rajarata University of Sri Lanka (FSSH-RUSL), of which the primary medium of instruction is Sinhala, focus on achieving everyday English communication skills; i.e., they are General English programs. However, the University Grants Commission of Sri Lanka has recently directed the faculties of Social Sciences and Humanities to start offering their degree programs in the English medium. In the process of offering the degree programs of FSSH-RUSL in the English medium, the ELT teachers can support the content teachers by introducing vocabulary and functional language relevant to the content subjects.

The present study was conducted with the overall aim of examining the most frequent English vocabulary and functional language relevant to the subjects offered by FSSH-RUSL by compiling and analyzing a digitalized corpus of Academic English: Rajarata University Social-sciences and Humanities (RUSH) corpus. The specific objectives of the study are to recognize English medium written texts that represent the subjects offered by the 08 departments of FSSH-RUSL, to compile a corpus of written academic discourse by digitalizing representative samples of the texts recognized thus, to make a linguistic analysis of the compiled corpus in order to recognize the vocabulary and functional language that could be used in CLIL teaching materials for the ELT programs of FSSH-RUSL, and to make suggestions for the improvement of the ELT programs of the faculty based on the findings of the study. What is meant by a 'corpus' here is a collection of authentic language data collected for linguistic study, and stored and accessed electronically. Software used to analyze corpus data are termed 'concordancers'. Corpus Linguistic methods use both quantitative and qualitative data analysis.

2. Materials and Methods

Since the key premises in CLIL programs are collaboration and integration, the first step in the present study, i.e., the selection of written academic texts representing the subjects offered by the 08 departments of FSSH-RUSL, was done in liaison with the coordinators of content subjects. Thus, written texts of the text type Printed Books (PB) were selected from the following content disciplines amounting to a generalized word count of 50,000 from each, totaling a raw word count of 645,511 (MS-word count) to compile the version 1.0 of RUSH corpus with the file name convention - Corpus name+Text Type+Subject Code: Archeology (RPBAR), Economics (RPBEC), Education (RPBED), Environment Management (RPBEM), History (RPBHI), Information Technology (RPBIT), Languages and Linguistics (RPBLL), Management (RPBMA), Mass Communication (RPBMC), Sociology (RPBSO), Statistics (RPBST), Tourism (RPBTO), and Water Resources Management (RPBWR).

The selected texts were then digitalized by scanning them, uploading them to a google drive (Google LLC, 2020), and opening them using the Google-Docs tool of the Google Drive. The digitalized data were saved onto the computer first as .docx files, and then they were converted and saved as concordance-readable .txt files to compile the sub-corpora of the RUSH corpus. Metadata for each sub-corpus file including socio-biological information of the authors were separately saved. The analysis of the RUSH corpus data was carried out using the online concordancer- Lextutor (Cobb, 2022), and the open-source concordancer- AntConc 4.3.1. and 3.4.1 (Anthony, 2024). Among the corpus analysis tools which can be used to explore content vocabulary and functional language, Keywords, Concordance lines or Key Words in Context (KWIC), Collocates, Frequency Range, and Lexical bundles (N-grams) are prominent.

3. Results and Discussion

Keywords are lexical items that are far more frequent in a (specialised) corpus compared to a reference (general) corpus. They indicate topic specific vocabulary and grammatical items that will reveal more specific information about the language preferences of the particular discipline. Thus, keywords are highly useful in preparing ELT material in CLIL programs. Table 1 below shows the first 20 keywords of the RUSH 1.0 corpus obtained by uploading the entire corpus file to Lextutor. The 'Keyness Factor' given in the table is the number of times more frequent the relevant word is in the present corpus than it is in the reference corpus used by Lextutor (bnc_coca_fams_speechwrite_US_UK_per10mill). For example, the first item in the output **9827.00 meaning** means that **meaning** has **1** natural occurrence in 10,000,000 words reference corpus, but **592** occurrences in the RUSH 1.0 (602,393-word) text -- or, (592/602393) x 10,000,000 = **9,827** occurrences if the present text were the same size as the reference corpus. The word is thus 9,827 / 1 = **9827.00 times** more frequent in the present text than it is in the reference corpus. This probably means the word plays an important (or 'key') role in the present text (cf. (Cobb, 2022). Keywords of all 13 sub-corpora of the RUSH 1.0 corpus were separately extracted this way, but the page limit restriction of the present paper doesn't permit reporting them.

Table 1. The first 20 keywords of the RUSH 1.0 corpus extracted from Lextutor.

S. NO.	KEYNESS	KEYWORD	S. NO.	KEYNESS	KEYWORD
01	9827.00	meaning	11	1428.00	eventual
02	9628.00	relation	12	1361.00	motivate
03	8300.00	politic	13	1179.00	sinhalese
04	7387.00	compute	14	1129.00	anthropogenic
05	5777.00	program	15	1129.00	archaeological
06	4648.00	irrigate	16	1062.00	professional
07	3287.00	especial	17	996.00	papyrus
08	2473.00	situate	18	996.00	moghul
09	2291.00	probable	19	930.00	criterion
10	1992.00	equip	20	913.00	excavate

In order to know the context and regular patterns of the usage of the above keywords, the basic tool of the software called 'concordancing', which shows "(Lexico)-Grammatical Co-occurence" (Gries, 2009), can be used. This list of lines with the search word at the centre is also called 'key word in context' (KWIC), and is useful for exploring different meanings of the search word. Figure 1 below shows the KWIC lines for the keyword of the corpus 'irrigate', occuring in Water Resources Management (RPBWR) sub-corpus as extracted by AntConc 4.3.1. sorted by Right collocates. As depicted in the figure, different forms of the verb 'irrigate' are presented here with the words frequently occurring with the word (collocates) so that both the ELT teacher and the learner find it easy to acquire the meaning of the word.

	File	Left Context	Hit	Right Context
1	RPBWR.txt	stems and more diversified irrigated agriculture. The history of	irrigated	agriculture in Sri Lanka has essentially been one of
2	RPBWR.txt	command. The scheme would allow intensification of existing	irrigated	agriculture on approximately 9,100 net hectares and developm
3	RPBWR.txt	&M under modernised irrigation systems and more diversified	irrigated	agriculture. The history of irrigated agriculture in Sri Lanka
4	RPBWR.txt	collection in Sri Lanka under traditional systems of rice based	irrigated	agriculture. The second is concerned with O&M under
5	RPBWR.txt	and (f) the component small tanks as well as the	irrigated	rice lands are shown in the same figure. Itakura
6	RPBWR.txt	MW. About 10,000 acres of the total area constituted existing	irrigated	rice lands. About 25,000 acres of the land was situated
7	RPBWR.txt	and right bank) and a system of distributory canals, which	irrigated	the entire area below their command. Thus, both well-
8	RPBWR.txt	mand. Thus, both well-drained and poorly drained lands were	irrigated.	The momentum was stepped up after Independence through a
9	RPBWR.txt	ncement of the ancient "hydraulic civilisation". The absence of	irrigated	upland agriculture practiced on a sustained basis over this
10	RPBWR.txt	been tried on an experimental basis, including an attempt to	irrigate	upland areas with lift irrigation. Another was the use
11	RPBWR.txt	ster Plan, which proposed to construct fifteen reservoirs and to	irrigate 900,000	acres over a period of 30 years, was Rs. 5.583 billion
12	RPBWR.txt	two main canals. The Left Bank canal was designed to	irrigate	an area of 80,000 acres while the Right Bank canal
13	RPBWR.txt	evels in 1980 and prospective levels with planned expansion in	irrigated	area during the 1990s. It reviews past strategies for
14	RPBWR.txt	potential new irrigable area is located uphill of the existing	irrigated	area. The proposed irrigation development would include: - im
15	RPBWR.txt	above the village. That tank, however, was not used to	irrigate	land. On the contrary, its express purpose was to
16	RPBWR.txt	the fourth order streams there is sufficient discharge from the	irrigated	lands during the February-April period that would ensure
17	RPBWR.txt	state sector. The latter predominate and are synonymous with	irrigated	settlement schemes. Gravity irrigation schemes can be classifie
18	RPBWR.txt	opment Board (RVDB). The prime objective was to develop and	irrigate	the 30,00 acres for double cropping, enhance yields, accommo

Figure 1. KWIC lines for 'irrigate' in Water Resources Management sub-corpus as extracted by AntConc 4.3.1.

Another common tool in corpus analysis software is 'word lists' or 'frequency lists', which usually provides the lists of words in the corpus according to their frequency. With Lextutor's 'Range' tool, it is also possible to extract the distribution range of the words across the sub-corpora of the corpus. Using Lextutor's 'Stoplists' function, the distribution range of discipline-specific vocabulary items, which is beneficial in the curriculum design of the CLIL programs could also be obtained. Table 2 below depicts the distribution range of the top 10 discipline-specific words of the three sub-corpora of the RUSH 1.0 corpus representing the three disciplines under the Department of Humanities of FSSH-RUSL, viz., Education (T1), History (T2), and Tourism (T3) as extracted by Lextutor. The first column gives the word family (Fams); the second column-the frequency in all three sub-corpora; the third- the distribution range; the fourth-the vocab profile (VP) group number; and the last three columns give the subcorpora in which the word appears, with the frequency given within brackets. The ELT teacher in a CLIL program for the Department can make crucial decisions regarding the lexis for a common ELT program based on this kind of results.

A corpus linguistic tool that can be used to explore functional language useful in a CLIL program is 'Lexical Bundles', which are also termed 'Gram Bundles' or 'N-grams'. They are recurring word strings that provide insights into the way words in a corpus go into combinations with other words frequently. For example, the top 10 most frequent 4-word N-grams of the RUSH 1.0 corpus, extracted by AntConc 3.4.1, given in Table 3 below show that the most frequent lexical bundles in the corpus are prepositional phrases which constitute an important type of functional language in an ELT program.

Table 2. The distribution range of the top 10 discipline-specific words of Education, History and Tourism sub-corpora of RUSH 1.0 corpus as extracted by Lextutor.

Word family	FREQUENCY	RANGE	T1	T2	T3
curriculum	249	2	T1(248)		T3(1)
philosophy	171	3	T1(147)	T2(17)	T3(7)
critic	163	3	T1(146)	T2(11)	T3(6)
concept	152	3	T1(68)	T2(13)	T3(71)
analyse	144	3	T1(83)	T2(5)	T3(56)
dynasty	122	1		T2(122)	
sustain	122	3	T1(8)	T2(12)	T3(102)
theory	111	3	T1(79)	T2(9)	T3(23)
ancient	110	2		T2(101)	T3(9)
define	109	3	T1(52)	T2(26)	T3(31)

Table 3. Top 10 most frequent 4-gram bundles of RUSH 1.0 corpus as extracted by AntConc 3.4.1.

Rank	FREQUENCY	N-GRAM
1	88	the end of the
2	86	at the same time
3	74	in the united states
4	69	on the other hans
5	60	history of mass communication
6	59	a history of mass
7	55	The company x s
8	52	as a result of
9	52	in the case of
10	48	in the form of

4. Conclusion

In fulfilling the responsibility of an ELT teacher of a CLIL program to support the content teacher through the introduction of discipline-specific vocabulary and functional language, corpus linguistic tools provide a reliable means of empirically recognizing the required language. The balanced samples of language included in the corpus, and the mixed method analysis provided through the tools like Keywords, KWIC, Collocates, Frequency Range, and N-grams, made it obvious that the results of the present study help both the ELT teacher and the content teacher perform their function easier than attempting to recognize the required language by manual means. Continuous collaboration of both teachers in the implementation of the CLIL program is, nevertheless, crucial in order to make the teaching program totally effective.

5. Keywords

CLIL, Concordance, Corpus, Vocabulary

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Exploring Delayed Echolalia in English-Speaking Autistic Boys (Aged 2-5) From Upper-Middle-Class Families in Sri Lanka: A Qualitative Study

K.G. Nadeesha Madumali Ranasinghe

Ministry of Buddhasasana,Religious and Cultural Affairs. nadeemadu32@gmail.com

1. Introduction

Autism spectrum disorder (ASD) brings countless challenges in communication, social interaction, and behavior, with echolalia emerging as a prominent communication pattern within this population. While echolalia has been extensively studied in Western contexts, there is a notable gap in research focusing on non-Western populations, particularly in countries like Sri Lanka. By narrowing the effort to this demographic, it is considered to research deeply into the refined experiences and expressions of delayed echolalia within a specific cultural and socioeconomic context. Understanding how delayed echolalia displays and functions within this demographic area can provide valuable insights into the communication challenges faced by English-speaking autistic children in Sri Lanka, as well as informing culturally sensitive interventions and support strategies addressed to their unique requirements. Through in-depth interviews and behavioral observations, this study seeks to highlight the triggers, patterns, and advantages and adversities of delayed echolalia, ultimately contributing to a comprehensive understanding of communication dynamics in autism within the Sri Lankan context.

2. Materials and methods

This qualitative study focused on four children aged 2-5 years diagnosed with autism spectrum disorder (ASD). Participants were selected from upper-middle-class families in the Colombo District, where English language is used as the first language of the children. Families were included based on their willingness to participate the study and to share internal information on their children.

To explore delayed echolalia comprehensively, the study has used two primary methods: semi-structured interviews with parents and direct behavioral observations of the children. Observations were conducted in naturalistic settings to minimize external influences and capture authentic communication behaviors. Specific attention was given to gestures, body language, eye contact, and repetitive verbal patterns that occurred independently of conversational prompts.

Semi-structured interviews with parents focused on giving detailed narratives about the children's communication habits, apparent triggers for echolalia, and its impact on daily interactions. Interviews were documented, and analyzed using thematic analysis to identify recurring patterns and themes.

Ethical clearance was obtained and informed consent was obtained from all parents before data collection. Though the sample size was small, this supports with the qualitative research objective of gaining deep, contextual insights.

3. Results and Discussion

The study examines the patterns and causes of delayed echolalia in children with autism, emphasizing the importance of understanding their communication practices. Delayed echolalia, involving the repetition of previously heard phrases, can serve various functions such as communication, coping mechanisms, and social interaction.

Triggers identified include routine events, stressful situations, strong emotions, sensory overload, scripted language, associative triggers, and language processing difficulties. These

triggers help children navigate transitions, manage emotions, and engage in social interactions using familiar phrases.

Delayed echolalia aids in expanding vocabulary, practicing pronunciation, and developing language comprehension. However, it can also hinder spontaneous speech development and cause contextual misunderstandings. Children may repeat phrases out of context, limiting their ability to generate original sentences and understand abstract concepts.

Mothers of autistic children view echolalia positively for language learning but acknowledge its challenges. They note that while echolalia helps in vocabulary expansion and communication, it also creates difficulties in spontaneous language generation and appropriate responses.

The study highlights the dual nature of delayed echolalia, presenting both opportunities and challenges in language development. Recognizing and supporting the adaptive functions of echolalia can help caregivers and educators assist autistic children in building effective communication strategies. Encouraging spontaneous speech and contextual language use can enhance their language skills and social interactions.

In conclusion, delayed echolalia has significant potential benefits in aiding language development despite its challenges. Targeted support can help autistic children leverage echolalia towards more effective communication, fostering their ability to engage with and understand their environment. This balanced approach acknowledges both strengths and difficulties associated with delayed echolalia, providing a comprehensive framework for supporting autistic children's communication development.

4. Conclusion

The research highlights the dual role of delayed echolalia in autistic children's language development. While it poses challenges like limiting spontaneous speech and causing contextual misunderstandings, it also offers significant opportunities for language growth. Mothers of autistic children view echolalia positively, noting its benefits in vocabulary acquisition, pronunciation practice, and language comprehension. Children use familiar phrases to interact with language, aiding their communication skills.

However, reliance on repeated phrases can hinder the generation of original sentences and appropriate responses, especially with abstract concepts and complex emotions. Recognizing the adaptive functions of echolalia is crucial. Caregivers and educators should foster environments that encourage spontaneous speech and contextual language use, balancing the strengths and limitations of echolalia. This comprehensive approach enhances autistic children's ability to communicate effectively and understand their surroundings.

5. Key words

Autistic, Communication, Delated, Demographic, Echolalia, Pattern

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Identification of New Trends in Tattoo Culture and a Sociolinguistic Study of the Impact of Tattoo Culture on Gender Equality

(From Selected Areas of Sri Lanka)

W.M.S.S. Bandara

Department of Sinhala, University of Ruhuna. wmssandaminibandara456@gmail.com

1. Introduction

Tattoo art can be identified as a contemporary cultural trend in Sri Lanka, which is a multicultural country. Being extremely popular, loved by all ages, and innovating with the times, tattooing has become an art form and has become a culture today. This art known as tattoo, which has a history of many decades, is also known as 'pachcha art'. Its origin has a history of more than 5000 years. Tattoo art first came to Sri Lanka with the British invasion. There, burning various symbols on the body of animals, marking various symbols on the body to identify those who were enslaved later became an art and has become an art at the present time. It is important to have a good understanding of language in order to achieve the goal of perfect education, which is the 4th goal among the goals for sustainability. All aspects of language birth, evolution and evolution should be studied. Accordingly, the goal of perfect education can be achieved by gaining an understanding of the vocabulary used in the study of the Sinhala language. Likewise, studying culture and identifying new trends is important for a sustainable future. Creating a society that follows the understanding of creating new cultures by enhancing existing art also leads to sustainability through holistic education. This is why studying tattoo culture is important. Language, culture and literature are important for a holistic education and culture is integrated in the study of language. The topic chosen for this research, tattoo culture, is very important in the study of contemporary culture. The importance of this research is to study the vocabulary added to the language and their reasons sociolinguistically, and to study the effect of this tattoo art on individual equality.

2. Methods

This research is a sociolinguistic study of the identification of new trends in tattoo art and its impact on individual equality. This research is conducted using the qualitative research method in relation to the literature source. The primary source for this study is the data collected through field study. Data was collected using 30 people from the urban areas of Colombo, Gampaha, Matara, Galle districts and the rural areas of Hambantota, Monaragala, Badulla as the field boundary. In addition to this, library survey, internet survey, pre-research studies are done to collect data and data is analyzed through chapters.

3. Results and Discussion

Tattooing is the creation of long-lasting symbols on the skin by incorporating pigments into the skin. The name 'Tattoo' from the Tahitian language 'Tatu' gradually evolved and came to be used as 'Tattoo'. Its Sinhala meaning is 'marking'. Although it was originally used to identify individuals, it has now become popular as a form of body adornment. People use this tattoo art to express their silent thoughts. Today, the art of tattooing, which has become a popular culture representing art, is an art that many people in Sri Lanka are passionate about. There are many types of tattoos.

- Polynesian tattoos
- Tribal tattoos
- Haida tattoo
- Black eyeboll tattoo

Among these fashions in Sri Lanka today, the art of black eyebolls is growing as a new category. As the sub-arts that go with this tattoo art, piercing the nose, putting a few earrings on the ear, and putting earrings on the pecan, Tongue fissure are also popular.

People's names, animal images, nature images, cartoon characters, symbols related to cosmic energy, scrolls, etc., are tattooed on their bodies. Accordingly, the evolution of art can be recognized as updated. Due to the advent of tattooing and related new types of tattoos, those new words have become negation in the Sri Lankan language. Through that, it is possible to identify the fact that the language is westernized and a mixed language is used. In the early days, the art of tattooing was called ' **pachcha '.** This is a Negation term in Tamil. 'Tattoo' is a negation term with westernisation. Also, the language has been mixed through the names of different types of tattoos in this tattoo art.

A style that has been normalized in the urban environment of Sri Lanka such as Colombo, Gampaha, Galle, Matara etc. There is no age difference. There is no gender discrimination either. Although this tattoo culture is used among the people and young community in the less developed rural areas such as Hambantota, Monaragala and Badulla the male community also uses it more. In these areas, people are not willing enough to accept this as an art. This tattoo art can be recognized as a symbolic communication expressing silent ideas. But in accepting this as an art, people in urban and rural areas have different opinions. There are several sociolinguistic reasons that affect it. Urban areas such as Colombo and Gampaha have a high interest in fashion. Tattoo art has also become very popular among them today. They have turned it into a professional art. This art of tattooing, which is systematically practiced at the business level after receiving education from experienced people, symbolizes the body regardless of gender in urban areas. Sometimes women even get tattoos on their breasts. But it is common for people in urban areas. Women do not lose their freedom of fashion in urban areas. But compared to urban areas, rural areas are mostly tattooed by men. Women are not free for that. Sometimes, if men get tattoos, they are addressed with obscene words. Women are also addressed with such bad words, so even those who are interested in tattoo art do not get space for it.

Examples: Few Sinhala words to address a lowly men and woman -: "බඩුව", "ගණිකාව", "මදාවියා", "රස්තියාදුකාරයා", " වණ්ඩියා"

By rejecting the art of tattooing, people's human feelings are also hindered. Individuality and their freedom are lost. As a result, both women and men in rural areas are shunned by the society if they get tattooed. This affects women more than men. But art has no limits. Tattooing is an art. Understanding it should be done through education. Through that, education should be perfect enough to create a society where individual freedom is not lost and individual equality is not hindered.

In studying under language and culture it is important to study the new words added to the language along with the tattoo culture. These are terms that have been negation into Sinhala with westernization and used as such.

Examples: piercing, tattoo

In rural and urban studies of the effect of tattooing on the equality of people, people in urban areas engage in tattooing regardless of gender and age. This tattoo art and its sub-arts are practiced as a fashion by anyone who has generally dropped out of school from 18 years of age to 50 years of age. But in rural areas there are restrictions for this. There are even cases where this art of tattooing is prohibited for girls. Tattoo art is a strong reason to reject women, especially in romantic relationships and in family settings. They define it as immoral art. Men are also belittled. Due to this, gender equality is hindered.

In order to create sustainability for future generations of a country, education should be updated and children should be given the opportunity to learn about contemporary culture. There, a free society with a positive thinking about tattoo art, a modern culture emerging through art without gender discrimination, and a society with gender equality can be created. As a result, tattooing affects gender equality. To create sustainability, gender equality must be created. In order to create equality, a fair understanding of modern cultures should be given. By studying contemporary modern culture in education, children should have a fair way of thinking in society from an early age. Tattoo culture should be understood as a fashion and an art so as not to interfere with individual freedom.

4. Conclusion

In a multicultural country like Sri Lanka, it can be recognized that people's reactions to the tattoo culture, which is a popular trend with westernization, vary regionally and urban. Studying tattoo culture and its idioms shows the extent to which they are integrated with language and culture by tending to study new cultures in education. But through this, gender equality is hindered. The perception of tattoo art is different in rural and urban areas. Through that, undeveloped education has made people accustomed to putting a woman in a low position and interfering with individual personality. In order to create individual equality in creating a sustainable future, it is important to study the culture and civilization of the country without confusing them with the perfect education system.

6. Key words

Gender Equality, Impact, Sociolinguistics, Tattoo Culture

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The Influence of Planning Time on Oral Performance in the IELTS Speaking Test: A Study of ESL Candidates

W.R.I.U. Nilaweera

SLIIT City Uni, Colombo 03, Sri Lanka. ishadhinilaweera@gmail.com

1. Introduction

In the current era, English is increasingly recognized as a vital global language for communication in the international economy and society, leading to a growing demand for English proficiency. Zaremba (2006) notes that, of the four core English skills, speaking is often regarded as the most crucial for effective communication. In ESL contexts, speaking is particularly significant because it involves an interactive process of producing, receiving, and processing information (Brown, 1994).

Speech is viewed as a "real-time" activity that requires rapid planning, organization, and expression (Bygate, 1987). Therefore, planning plays an essential role in speaking, with research indicating that it has a consistently positive impact on L2 oral production (Ellis, 2005). Pre-task planning, in particular, helps learners structure their speech and improve both its content and quality (Elder & Wigglesworth, 2010).

The current study examines strategic planning, a type of pre-task planning focused on preparing both the content and its expression for the task at hand. Over the last two decades, research has shown that strategic planning benefits second language speech in areas such as fluency, complexity, and accuracy (Skehan, 1998).

While many studies have explored how learners use planning time in classroom settings, less attention has been given to how ESL candidates utilize planning time in language testing situations (Elder & Wigglesworth, 2010). This is especially relevant for standardized tests like the IELTS, which rigorously assess speaking skills. As such, the objective of this study is to investigate how different planning times impact the oral performance of ESL candidates in Part 2 of the IELTS speaking test. The following research question is addressed through the study: What impact does varying planning time have on the oral production of candidates in Part 2 of the IELTS speaking test?

2. Materials and Methods

2.1.Population and Sampling

The study targeted a group of 143 candidates enrolled in IELTS preparation courses at Westgate College and ICBT Campus in Matara. Using convenience sampling, a subset of this population was chosen to reflect the larger group (Acharya, Prakash, Saxena, & Nigam, 2013). Upon examining the band scores from two IELTS mock speaking tests given at both institutions, it was determined that 48 students achieved a band score of 6.0 in speaking. The researcher assumed that these 48 participants, all receiving the same score in both tests, had similar proficiency levels and therefore were selected for the study. The participants, aged between 21 and 33 years, all came from Sinhala-speaking backgrounds and were learning English as a second language. They also intended to take the IELTS test in the near future.

- Data Collection Tools

In this study, two face-to-face speaking tests, similar to Part 2 of the IELTS speaking task, were used as the data collection method to gather quantitative data. Each test was centered around a distinct cue card. The first cue card required participants to talk about an event that had a major influence on them, while the second asked them to describe a country they would like to visit.

- Data Collection Process

In this study, 48 students were selected through convenience sampling. After obtaining consent from all participants, they were grouped using systematic random sampling. Each participant was assigned a number between 1001 and 1048, and based on the remainder when divided by 3, they were allocated to one of three groups: Group A (remainder 0), Group B (remainder 1), or Group C (remainder 2). Each group was assigned different planning times: 30 seconds for Group A, 1 minute for Group B, and 2 minutes for Group C. Unlike the study by Elder and Wigglesworth (2010), this study did not include a "no planning" condition. The study was conducted by two trained IELTS examiners, following the standard guidelines for the IELTS speaking test. Along with the varying planning times, participants were given 15 seconds to review a cue card before completing two speaking tasks similar to those in IELTS Part 2. Participants' responses were recorded for later analysis.

- Data Analysis

The quantitative data which was collected through speaking tests was analysed using SPPS software. ANOVA test was used to compare the performance of three groups under different planning times. In analysing the data, the overall oral performance of the three groups was compared.

3. Results and Discussion

3.1.Results

ANOVA Analysis

How the total marks affected with regards to the students' planning time is presented.

Table 1: ANOVA test results of total marks

ANOVA					
V7					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14.632	2	7.316	62.320	.000
Within Groups	10.917	93	.117		
Total	25.549	95			

According to the data presented in the above table, P value equals to.000. It suggests that there is a significant difference between the performances of three groups.

Table 2: Post hoc test results of total marks

Multiple Comparisons							
Dependent Variable: V7							
						95% Confidence Interval	
	(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Tukey HSD	30 seconds	1 minute	.859375*	.085656	.000	.65536	1.06339
		2 minutes	.792969*	.085656	.000	.58895	.99699
	1 minute	30 seconds	-.859375*	.085656	.000	-1.06339	-.65536
		2 minutes	-.066406	.085656	.719	-.27042	.13761
	2 minutes	30 seconds	-.792969*	.085656	.000	-.99699	-.58895
		1 minute	.066406	.085656	.719	-.13761	.27042

The table results indicate that, in comparisons between the 30-second group and both the 1-minute and 2-minute groups, the P value is less than 0.05 (P=.000, P<0.05). This suggests that the 30-second group achieved significantly higher oral performance than the other two groups. However, when comparing the 1-minute group with the 2-minute group, the P value exceeds

0.05 (P=.719), showing no significant difference in their overall scores. This is depicted in the means plot.

3.2.Correlation analysis

The Pearson correlation was used to evaluate the association between two variables, focusing on shared variance, the direction (positive or negative) of their relationship, and the strength of their correlation (Chee, 2015). The findings demonstrate how planning time relates to candidates' scores in fluency and coherence, lexical resource, grammatical range and accuracy, pronunciation, andoverall performance.

Table 3: Correlation analysis of time and five sections

Correlations							
		Time	Fluency	Lexical	Grammar	Pronunciation	V7
Time	Pearson Correlation	1	-.707**	-.543**	-.343**	-.571**	-.628**
	Sig. (2-tailed)		.000	.000	.001	.000	.000
	N	96	96	96	96	96	96
Fluency	Pearson Correlation	-.707**	1	.732**	.566**	.697**	.867**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	96	96	96	96	96	96
Lexical	Pearson Correlation	-.543**	.732**	1	.723**	.760**	.917**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	96	96	96	96	96	96
Grammar	Pearson Correlation	-.343**	.566**	.723**	1	.670**	.830**
	Sig. (2-tailed)	.001	.000	.000		.000	.000
	N	96	96	96	96	96	96
Pronunciation	Pearson Correlation	-.571**	.697**	.760**	.670**	1	.887**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	96	96	96	96	96	96
V7	Pearson Correlation	-.628**	.867**	.917**	.830**	.887**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	96	96	96	96	96	96
**. Correlation is significant at the 0.01 level (2-tailed).							

The table results indicate a negative linear relationship between planning time and the different sub-sections of the speaking test. Pearson's r analysis demonstrated a strong negative correlation for fluency, with an r value of -0.707, implying that students who allocated more time for planning achieved lower fluency scores than those who planned for less time. For the remaining four sub-sections—lexical resource, grammatical range and accuracy, pronunciation, and overall score—the correlation with planning time was moderate, with r values between -0.3 and -0.7.

3.3.Discussion

This study investigated the effect of different planning times on candidates' oral performance. ANOVA and Tukey post hoc tests comparing the 30-second, 1-minute, and 2-minute planning conditions showed a P value of .000 (P<0.05) for the 30-second group, indicating that candidates with only 30 seconds of planning time produced notably more fluent and accurate language, with increased lexical density and better pronunciation. Furthermore, the 30-second group achieved higher overall scores, suggesting superior performance compared to the 1-minute and 2-minute groups across five sections. However, these results contrast with earlier studies, such as that of Li, Chen, and Sun (2015), who found that 1 minute or more of planning improved fluency, accuracy, and lexical diversity. Similarly, Elder and Wigglesworth (2010) found no significant performance differences with different planning times, though they did support brief planning periods in language proficiency assessments.

A Pearson correlation analysis was performed to assess the relationship between planning time and candidates' oral performance. Results indicated a negative R value in all sections, demonstrating a strong negative correlation; as planning time increased, overall performance decreased. Fluency, in particular, had the highest negative R value (-0.707), suggesting that additional planning time negatively impacted fluency and coherence more than other sections.

These findings suggest that, although candidates may believe that more planning time would be beneficial, extending planning time (up to two minutes) does not enhance performance.

4. Conclusion

Several studies have investigated the advantages and disadvantages of allowing planning time before oral tasks. However, further research within testing contexts is necessary to fully understand its impact on oral proficiency exams and how it might shape the test construct. Although the current study focuses solely on the IELTS speaking test, future studies could extend this analysis to other international proficiency exams. Additionally, past studies (Ellis, 2009; Elder and Wigglesworth, 2010) and this study have concentrated mainly on intermediate and advanced learners, highlighting the need for more research on how planning time affects oral performance among ESL learners across various proficiency levels.

5. Acknowledgment

I am deeply grateful to my family and friends for their unwavering support, patience, and encouragement, which have been a source of strength throughout this journey.

6. Keywords

ESL learners, Part 2 of IELTS, Planning before speaking, Speaking proficiency

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The Research Study of Social Cultural Ecological Management System of the Irrigation Systems and Rituals: A Case Study from North Central Province, Sri Lanka

D.M.W.K. Dissanayake

Department of Languages, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka, Mihintale, Sri Lanka. dwasanta@yahoo.com

1. Introduction

This study explores the intricate relationship between Irrigation systems and Rituals in the North Central Province of Sri Lanka. It examines decision-making and Social Cultural organization in Irrigation system and Rituals among the people in the Tank village. Rituals hold religious significance and serve as a framework for managing water resources and fostering community Cohesion. The paper begins with a discussion on the cultural anthropological understanding of rituals, drawing on the works of Durkheim, Leach, and Boocock. It then delves into specific rituals practised by communities in the village, including the worship of deities like, Ayyanayaka (AYYANA) Pullear (Gannesh) Sadun kumara, Minneri (Mahasen) associated with the Mutti Mangallaya, Hurulu Mangallaya as an annual agricultural festival cycle. These rituals, often held under sacred trees (Panhinda) near village tanks (WAVA), involve offerings and prayers for a bountiful supply of fresh harvest.

2. Research Methodology

This research utilizes a comprehensive approach drawing on both primary and secondary sources, which were systematically collected through extensive library use. Methodologically, participant observation and interviews with Village communities were integral to data collection. A qualitative research approach was utilized, specifically employing human species data analysis techniques.

It examines how water festivals create shared experiences, transmit indigenous knowledge across generations, and promote cooperation, social communication, and a connection with nature.

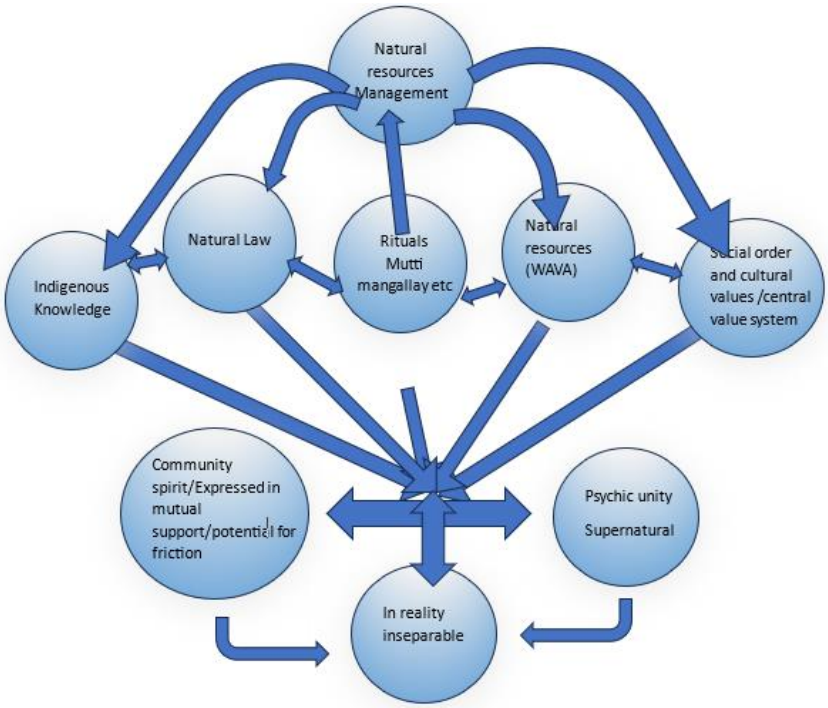
3. Result and Discussion

The findings highlight the Rituals festivals in shaping irrigation communities decision-making processes and organizational structures. These practices foster strong social networks built on shared values, traditions, and customs. The Nagatambiran Dewalaya case study exemplifies how religious centers play a crucial role in maintaining social cultural ecological management order and responsible resource management.

This research study consists of emphasizing these rituals' ethical and moral dimensions. They are not only merely religious practices but are deeply intertwined with the biological and psychological sustainability of water resources and the well-being of village society. Importantly, these rituals act as a time and resources management tool, marking the commencement of cultivation cycles and facilitating coordinated agricultural activities. Ritual activities are present in all areas of social and cultural life and are key means of resolving the problems encountered by individuals and groups in both sacred and profane aspects of social existence.

It appears to be a practice with ritual activities within the Village people to tie three-coin knots in a piece of cloth every tank bound to one tree is spared from the general clearing to serve for the worship of Ayyana Deviyo.

Figure1: The Traditional Irrigation Systems and Social Cultural Ecological Management System



4. Conclusion

Irrigation rituals strengthen social, cultural, and ecological management systems in North Central Province. According to Radcliff-Brown, functional explanations of certain ritual institutions show that their rites are expressed symbolically and help to sustain certain social attitudes and values conducive to the smooth functioning of community life.

5. Keywords

Rituals, Irrigation Management system, Paddy Cultivation, Community Organization, Time Management, cultural activities.

6. References

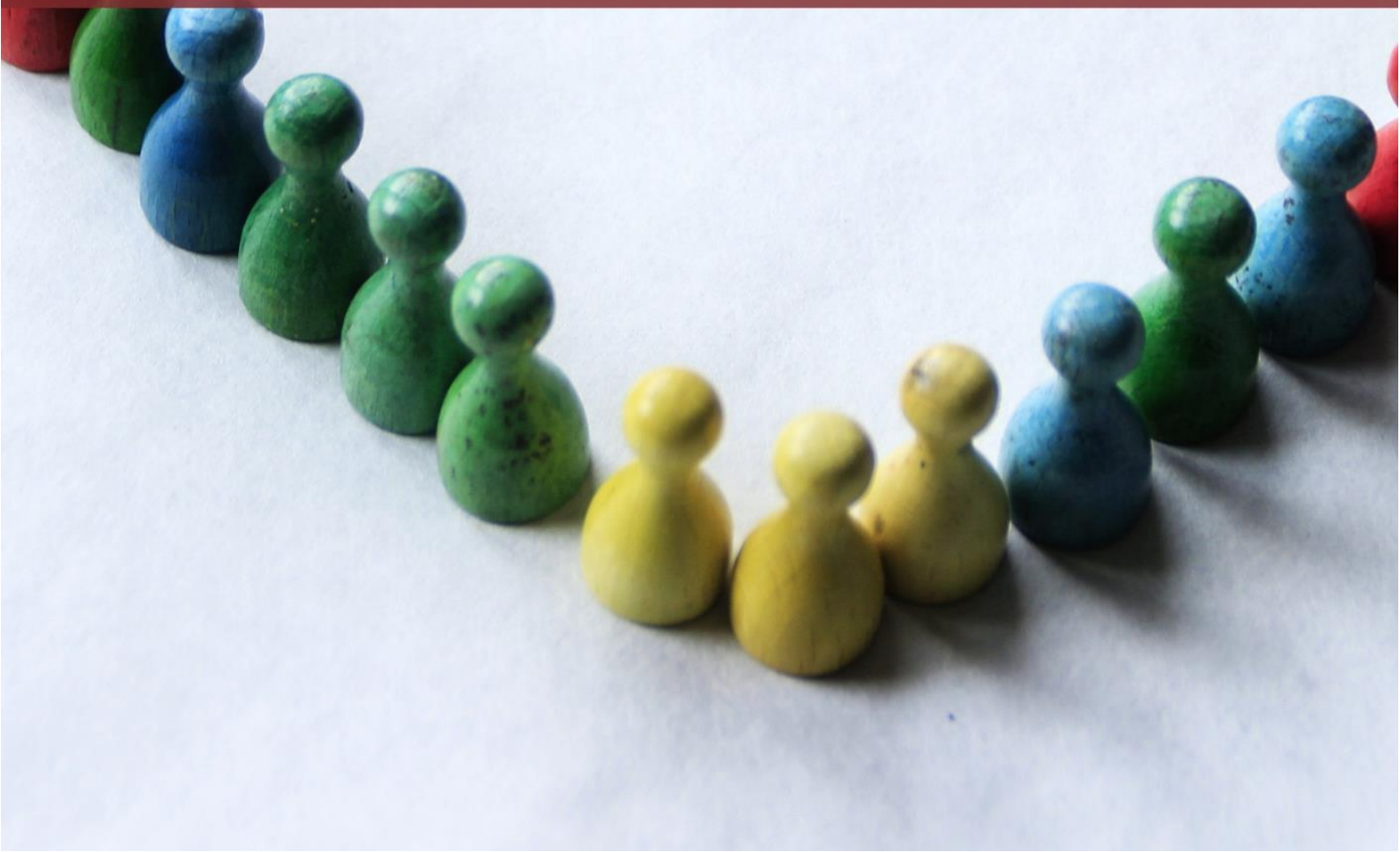
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IRSSSH 2024

International Research Symposium on Social Sciences and Humanities

Track 6
Sociology, Anthropology, and Criminology

Understanding Societal Dynamics for a Sustainable World



A Case Study on The Socio-Cultural Determinants Predicting Criminal Behavior in Urban Slum Environments

H.L.S. De Zoysa[1], O.A.Y. Chamathya[2] and K.A.S. Udayanga[3]

[1] *Department of Legal Studies, Open University of Sri Lanka. lszoysa96@gmail.com*

[2] *Department of Sociology, University of Ruhuna, Sri Lanka.*

[3] *Bremen International Graduate School of Social Sciences, Germany.*

1. Introduction

Understanding the complex interplay between urban slum environments and criminal activities is essential for developing effective crime prevention strategies. This study aimed to explore how the challenging conditions of urban slums contribute to the intergenerational transmission of criminal behavior. Prior research suggests that social disorganization within urban slum communities characterized by poverty, inadequate infrastructure, and limited social services creates a breeding ground for social instability and criminal behavior (Abeyasinghe et al., 2022; Sampson et al., 2002).

This study adopts a qualitative research approach, using purposive sampling to conduct five in-depth case studies in selected slum areas - Wanathamulla, Salamulla, and Hetewaththa within the Colombo District of Sri Lanka. Through in-depth interviews with residents, we aimed to capture the lived experiences and perceptions of individuals within these communities. Drawing on Agnew's (2014) integrated theory, which combines elements of social disorganization and strain theories, we examined the socio-cultural conditions that shape criminal behavior in urban slums (Agnew, 2014). This aligns with Merton's (1938) concept of anomie, where a lack of legitimate means for success within structurally disadvantaged areas can drive individuals toward criminal behavior.

Utilizing Akers' (1973) social learning theory as a foundational framework, this research further investigates how criminal behaviors are socially learned within these communities, transmitted through observation and interaction with others. Akers and Jensen (2006) note the empirical significance of social learning theory in explaining deviant behavior, particularly in high-crime environments where exposure to criminal activities is frequent (Akers & Jensen, 2006). In these contexts, behaviors such as drug dealing and organized crime can become normalized within families and communities, fostering a cycle of deviance that is transmitted across generations.

By examining how social learning processes, familial socialization, and peer influence contribute to the evolution of criminal behavior, this study aimed to provide a comprehensive understanding of the socio-cultural motives driving crime in urban slum settings as the major research objective. The insights derived will inform the development of intervention strategies and policies aimed at addressing the root causes of crime, thereby fostering resilience and supporting crime prevention in marginalized communities.

2. Materials and Methods

This study employs a qualitative research design, chosen for its effectiveness in capturing the complex and nuanced perspectives of criminal behavior within urban slum environments. Qualitative methods are particularly suitable for exploring the socio-cultural factors influencing criminality, as they provide insights into participants' subjective experiences, social dynamics, and contextual realities.

The study was conducted in three prominent urban slum areas in Colombo, Sri Lanka: Wanathamulla, Salamulla, and Hetewaththa. These locations were selected due to their high crime rates and socio-economic conditions, which align with the focus of the research. A purposive sampling method was employed to select participants, ensuring they had either direct experiences of criminal conduct or relevant insights through close social connections. A total of five in-depth case studies were conducted to explore personal and community-based experiences of criminality.

Data collection involved semi-structured, in-depth interviews to capture the lived experiences and perceptions of participants regarding criminal activities and the socio-cultural influences that foster criminal engagement. Semi-structured interviews allowed for flexibility, enabling the researcher to probe deeper into themes that emerged during conversations while maintaining a focus on key research questions. Interviews were recorded (with participants' consent) and transcribed verbatim to ensure accuracy in capturing responses.

Thematic analysis was used to interpret the data, following Braun and Clarke's (2006) six-step framework: familiarization, coding, generating themes, reviewing themes, defining and naming themes, and producing the report. This process involved carefully reading the transcripts multiple times to identify recurring patterns and meaningful themes related to criminal behavior, socialization, and peer influence. Each theme was examined for its role in contributing to the understanding of socio-cultural determinants of criminal behavior. NVivo software was utilized to support the organization and coding of data, enhancing the rigor and efficiency of the analysis. To ensure the rigor and trustworthiness of the findings, member checking was conducted by sharing summarized findings with a subset of participants to confirm the accuracy of interpretations. Additionally, peer debriefing sessions were conducted to refine the analysis and validate thematic findings. Reflexivity was maintained throughout the study, with the researcher critically reflecting on their influence on data collection and analysis to minimize bias. This qualitative approach reveals the hidden and complex dynamics of life in an urban slum community, providing a rich understanding of the socio-cultural determinants shaping criminal behavior. By using a rigorous methodology, this study aims to contribute valuable insights that inform strategies to address crime and social instability in marginalized communities.

3. Results and Discussion

This study's findings revealed critical socio-cultural factors that drive criminal behavior in urban slum environments, highlighting the interconnected roles of socialization, intergenerational transmission, and peer influence within these communities. By situating these findings within established criminological frameworks, we gained a deeper understanding of the ways in which slum environments cultivate deviant behaviors and reinforce crime cycles. One of the most prominent findings concerned on the influence of early socialization on criminal behavior. Respondents commonly reported that exposure to crime often began in childhood, with family members or peers directly encouraging such activities. In these cases, deviant behavior was frequently normalized, with criminal acts viewed as necessary for survival or for gaining respect within the community. Social Learning Theory, proposed by Akers (1973), provides a valuable lens for interpreting this phenomenon (Akers, 1973). According to this theory, criminal behavior is not only learned but reinforced through observation and imitation within a socially supportive environment. For residents of urban slums, where opportunities for legitimate success are scarce, crime often appears as a viable alternative, embedding criminal norms into the social fabric of the community from an early age.

Another significant finding was the intergenerational transmission of criminal behaviors within family networks, with participants recounting how illegal activities, including smuggling, drug

trafficking, and underworld affiliations, were passed down through generations. For instance, one respondent explained how a former prison officer engaged in smuggling contraband after marrying into a family with a history of illicit activities. This pattern exemplified how family networks, coupled with social pressures within the slum ecology, perpetuate a cycle of criminality. Social Learning Theory (Akers, 1973) also supports this observation, emphasizing how criminal behavior is reinforced through familial and social connections, which play crucial roles in the continuity of deviant behavior across generations. This finding suggested that interventions targeting family networks and community norms may be particularly effective in breaking cycles of criminal behavior.

Peer influence emerged as a powerful factor in shaping criminal behavior. Participants described how peer pressure within cohesive groups often compelled individuals to engage in criminal activities as a means of gaining acceptance and status. Informal social networks in slum areas reinforce deviant norms and behaviors, fostering environments in which crime is embedded in everyday interactions. Social Disorganization Theory, as developed by Shaw and McKay (1942), offers insight into this pattern by highlighting how environmental instability and resource scarcity contribute to deviance within close-knit, socially disorganized communities. In the context of slum environments, limited access to education, employment opportunities, and social services compounds the social cohesion among residents, facilitating the spread of deviant behaviors through peer groups and informal networks. The findings aligned with multiple criminological theories that explain the relationship between social settings and criminality, offering a nuanced view of crime in urban slum environments. Social Learning Theory (Akers, 1973) elucidates how urban slums, where legitimate avenues for socio-economic mobility are constrained, serve as environments where individuals learn and replicate criminal behaviors through observation, imitation, and reinforcement. This framework illustrates how slum residents, especially young people, come to view crime as a normalized response to limited opportunities.

Social Disorganization Theory (Shaw & McKay, 1942) contextualizes these findings by demonstrating how structural inequalities, residential instability, and limited access to resources create settings where crime and deviance are likely to flourish (Shaw & McKay, 1942). The theory suggested that, in socially disorganized environments, community control mechanisms weaken, enabling deviant norms to proliferate through social networks. In urban slums, these structural conditions foster environments where crime becomes part of the community's social structure, perpetuating deviance through collective social processes. Finally, Strain Theory (Merton, 1938) complements these insights by underscoring the frustrations that arise from unfulfilled aspirations for socio-economic advancement. When legitimate pathways are obstructed, individuals may resort to criminal activities as alternative means of achieving financial or social success. This aligned with the experiences of participants in this study, who often viewed criminal activity as a practical or even necessary response to constrained opportunities within their communities. This study underscored the complex socio-cultural factors that influence criminal behavior in urban slum environments. By integrating Social Learning Theory, Social Disorganization Theory, and Strain Theory, we gained a comprehensive understanding of how slum residents are not only exposed to criminal behavior but socialized into it through family, peer, and community dynamics. These insights suggested that interventions must target multiple levels of influence—including family networks, peer groups, and broader structural conditions—to effectively reduce crime in marginalized urban settings. Initiatives that strengthen community resources, increase access to education and employment opportunities, and disrupt intergenerational crime cycles may be particularly effective in reducing crime and fostering resilience in urban slum communities.

4. Conclusion

This study offers a comprehensive analysis of the socio-economic and cultural determinants that shape criminal behavior in urban slum settings, highlighting the interconnected roles of early socialization, intergenerational transmission, and peer influence in fostering deviance. By examining these factors, this research contributed to a deeper understanding of how slum environments may act as breeding grounds for criminal behaviors. The findings align with established criminological theories, such as Social Learning Theory (Akers, 1973), Social Disorganization Theory (Shaw & McKay, 1942), and Strain Theory (Merton, 1938), which collectively underscored the importance of social and structural contexts in crime perpetuation. The study revealed that early socialization within families and communities normalized criminal behaviors, embedding deviance within social norms and often framing crime as a survival mechanism. Intergenerational transmission further solidifies this deviant culture, creating cycles of criminality that are deeply entrenched within family networks and peer groups. Peer influence also significantly impacts criminal engagement, where social networks and group norms within slum areas promote a collective identity rooted in deviant behaviors.

Effective intervention strategies, therefore, must address the foundational social and structural issues underpinning criminality. Tackling structural inequalities, improving access to quality education, enhancing employment opportunities, and expanding social services are essential for disrupting cycles of criminal behavior. Social Disorganization Theory supported this need by emphasizing that reducing residential instability and enhancing community resources can strengthen social controls, thereby diminishing the allure and prevalence of deviant behavior. Furthermore, programs focused on positive socialization and resilience-building—such as mentoring, youth engagement, and community-based support systems—align with Social Learning Theory, aiming to replace criminal influences with pro-social models. By emphasizing both individual and community-level interventions, this study highlighted the importance of multi-layered approaches to crime prevention. Policymakers and practitioners should integrate socio-economic support with community development initiatives that foster resilience, equity, and social cohesion within marginalized urban communities. Such initiatives hold the potential to break the cycles of criminality, encouraging positive social outcomes for residents and enabling the long-term transformation of high-risk environments. In summary, this research emphasized that sustainable crime reduction within urban slums requires targeted, evidence-based interventions that addressed both the immediate social influences and the broader socio-economic conditions fostering crime. Through this dual approach, the findings advocated for policies that not only mitigate criminal behaviors but also promote the social and economic well-being of marginalized urban populations, offering a scientifically grounded pathway toward crime reduction in slum communities.

5. Key words

Criminal Behavior, Slum Environment, Socio-Cultural determinants, Urban

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A Socio-Anthropological Study of the Relationship Between Changes in Traditional Village Structures and Human-Elephant Conflict.

T.D.U. Gamage

Senior Lecturer, Department of Social Sciences, Faculty of Social Sciences and Humanities, Rajarata University, Mihintale. Sri Lanka. udayakanthi@ssh.rjt.ac.lk

1. Introduction

In recent decades, the escalation of human-elephant conflicts (HEC) has become a pressing issue in Sri Lanka (Köpke et al., 2021; Köpke et al., 2023). Historically, Sri Lanka has been known as a country with a large population of elephants. While HEC is a current challenge in Sri Lanka (Köpke et al., 2021; Köpke et al., 2023), there was a time in the past when humans and elephants coexisted peacefully. The Asian elephant holds a special place among elephants, which are some of the most captivating mammals on land. Additionally, elephants in Sri Lanka possess significant biological and cultural value. Due to various religious beliefs, elephants are considered sacred by many villagers and have come to play a key role in guiding human lives. The coexistence of elephants and humans in shared landscapes (Fernando, 2015) has led to increasing confrontations, resulting in property damage, crop raiding, and loss of life on both sides. While several factors contribute to the occurrence of human-elephant conflicts (HECs), including habitat loss, human encroachment, and agricultural expansion (Anuradha et al., 2019), the interaction between these factors and socio-cultural dynamics remains understudied.

2. Research Problem

Environmental and social factors have both played a significant role in escalating elephant-human conflict. Environmental causes include water scarcity, inadequate space for elephants, and insufficient food resources. On the social side, factors such as overpopulation, development projects, village construction obstructing elephant migration routes, deforestation, and the release of cattle into reserves exacerbate the issue. In the past, traditional rural social structures helped prevent elephants from entering villages, as their primary needs were met within forests and thickets. However, it raises the question of whether other elements of the old rural social systems actively deterred elephants or displaced them from villages. Based on this, the central research question for this study is: *"Has the breakdown of traditional village social structures contributed to the escalation of elephant-human conflict?"*

3. Research Objectives

Main Objective of the research was to study how changes in traditional village structure have affected elephant-human conflict. To achieve the above objective, sub-objectives have been outlined as follows:

- Identifying the factors that kept the elephant away from the traditional production social structure
- Identifying the factors that have influenced the elephant's attraction to the village
- Identifying the social impact of elephant-human conflict
- Identifying measures that can be taken to reduce human-elephant conflict

4. Research Methodology

This study employed a qualitative research approach to gain an in-depth understanding of the human-elephant conflict and its implications. The case study method was adopted as the primary research strategy, allowing for a focused exploration of the issue within a specific geographical and social context. To gather the necessary data, structured interviews were

utilized as the primary data collection technique. This method facilitated the collection of detailed and consistent information from participants. Both primary and secondary data sources were incorporated into the research to ensure a comprehensive understanding of the phenomenon.

The research sample consisted of 20 families directly affected by human-elephant conflict. These families were selected from the 540 Mahakanumulla Grama Niladhari division, located within the Tirappane Divisional Secretariat Division of Anuradhapura District. This area was chosen due to its significant experience with human-elephant conflict, providing a rich context for the study.

5. Data Analysis, Result and Discussion.

Maha Kanumulla Grama Niladhari Division is a traditional village in the dry region belonging to the ancient irrigated civilization. In the past, the village was also home to the main features of a village called Tank (Wewa), paddy field (Kuburu Yaya), Village residential place (Gammedda), Cannel (Ela), Temple, Chena cultivation could be identified in the traditional village. In that traditional village, the quality of the sustainable economy, physical, mental, social, freedom, security, all the necessary factors for the well-being of a society help. According to the research data providers, it could be identified that short-term and long-term social discriminating factor was the change of traditional village that led to elephant-human conflict.

[1] The people who living in the Village residential place was structured in the natural protection system

People living together in the village and the village being structured in a natural and protected system. A village residential places was established below the Tank and it was a protected natural site with multiple purposes. Due to the settlement of the villagers in the same place, their inter-relationships were established, cooperative lifestyle, communication of accidents became easier in this. At present, elephants have been reported to have damaged many properties and stored them in places. In the past, the damage from elephant was minimized due to the fact that the harvest storage places (Vee Bissa) was located outside the house. But due to the epidemic of malaria and other infectious diseases, the villagers were re- settled in deferent places in the village with the distance. In addition to this, the village expanded due to the second and third generations occupying land elsewhere in the village. These cases mostly affected to the elephant residences pleases and elephant corridors.

[2] Changing the Chena cultivation Patterns

Chena cultivation in a traditional village varies from season to season depending on the crop being grown. In the old Chena farming, the cultivation of all the villagers was farmed together. There, the big land which had been too prepared for Chena cultivation was surrounded by one big fence at the same time by farmers. Harvesting also was done at once. Villagers collectively looked after the plants and fruits growing in the Chena. Even at night, when they gather together, the elephants do not come to the village because of the human voice. At the mid night also, farmers made noise with nice lyrics and we called it as a Jana Kavi. Elephant has not come to village, because of the human voice. There the elephant-human conflict was minimal.

[3] The collapse of the traditional village water management system

There was a very advanced water management in the old village, it is known as Ellangha system and this is a successful pattern of water consumption among the villagers. Accordingly, the water needed by the elephants was obtained from the small tanks (Kulu Wewa) in the forest

and the other small tanks located near Chana, and the water consumption needed by the elephants was prevented from reaching the main tank used by the villagers in the village. But today these small tanks have been destroyed and due to this, elephants come to the main tank inside the village for the water needs of the elephants.

[4] Today, there is no natural protective fence around the traditional villages or settlements. However, around the old village settlements, there was a natural fence with citrus plants and spices.

[5] Traditional crop protection strategies, mysticisms were practiced among the villagers which prevented elephants from invading the village.

Today, the natural control strategies used to prevent elephants from entering the village in the aforementioned traditional village have changed. Green revolution, environmental protection measures taken to control the spread of infectious diseases, development projects from the government and private sectors changed the traditional rural structure. Accordingly, the village of 540 Mahakanumulla has changed a lot today. Today, the traditional settlements below the lake have been located close to the other road from that place.

The change in the distribution of Chena cultivation and the pattern of cultivation can be clearly identified here. Except for the main tank in the old village, all other water flow patterns have changed today. There are no small lakes near the forest today. The traditional path of the elephant has been crossed and new development activities have been done. Due to that the traditional path of the elephant has been closed. The villagers also said that elephants will come to the village due to the above facts. In addition, the research revealed that the behavioral patterns of elephants have also changed. They mention that the elephant likes the fruits and nuts like jackfruit and mango grown in the village and eats them by attacking the places where rice is stored.

6. Conclusion.

According to above matters, the habitats of elephants and the small forests where elephants used to eat have been destroyed and constructions have been carried out crossing the traditional route used by elephants. The absence of natural protective fences in villages and Chena has led to changes in the collective lifestyle, and elephant-human conflict has become a social problem. Accordingly, loss of human lives, loss of social security, disruption of normal activities, and this situation leads to an insecure lifestyle in the area where elephant-human conflict exists.

7. Keywords

Human-Elephant Conflicts, Traditional Village Structures, Chena cultivation Patterns.

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A Sociological Study on the Factors Contributing to the Rise of Period Poverty Among Sri Lankan Women

P.G.S.R. Bandara

Department of Social Sciences, Faculty of Social Sciences & Humanities, Rajarata University of Sri Lanka, Mihintale, Sri Lanka. bandarasachini222@gmail.com

1. Introduction

A healthy population is one of the most important determinants of the country's economic development. The concept of the World Health Organization that health is a basic human right was accepted by the first government that came to power after independence from the colonial state in 1449, and all the governments that came to power after that have borne that responsibility. In 1951, free health policies were introduced and all the governments that came to power so far have continuously implemented policies and programs aimed at welfare. However, the health sector in Sri Lanka faced a severe challenge due to the covid epidemic which started spreading from march in 2020, and therefore the government had to bear a huge additional cost for health services. Also, due to the foreign exchange liquidity crisis, the importation of essential medicines and other medical equipment and sanitary materials was limited. had to give. where some of the most impoverished and vulnerable groups are severely affected, the development goals are more Negatively influenced. It was possible to identify the female population as a more vulnerable group, and the increase in the price of sanitary products with the economic crisis strongly influenced their health and hygiene. Accordingly, more than in previous years, Sri Menstrual poverty in Sri Lanka clearly showed a rapid growth. The American Medical Women's Association defines period poverty as inadequate access to menstrual hygiene tools and education. This includes the following approaches:

- Sanitary products
- Laundry facilities
- Waste management
- Toilet facilities with water
- Mechanism for disposal of used materials
- Privacy means.

Many women are physically and mentally tired due to their responsible busy lives and are facing some crisis and because of this busyness, the tendency of many women to pay attention to their health and hygiene is at a very low level. Many problems related to sanitation have to be faced. It is called economic poverty and has developed into a social problem. There is. A review of recent research literature shows that there are still a group of women who do not use factory-made sanitary napkins and sanitary liquids during their menstrual period. As these studies make clear, the reasons for the development of menstrual poverty or economic poverty in Sri Lanka A few main points can be identified. It can be highlighted that women are not aware of the importance of maintaining their health and hygiene, do not give priority to their personal hygiene, do not have enough economic power to use standardized hygiene products and are used to using unsafe alternatives.

This situation already sends a red signal of a major health problem in the country and the majority of women do not use sanitary napkins during their monthly periods, which not only affects their health, but also delays their lives for several days every month in their daily activities affected Strongly. When the population of a country is weak in terms of health, it has a negative impact on the country's development process. A healthy woman, a professional, a housewife makes a huge contribution to social progress. Good parents give birth to good children, healthy parents give birth to healthy children and have the strength to commit to their

future. When a woman is weak in terms of health and hygiene, it affects the entire family system. It affects the income status of the head of the household. The survival of the child studying from It is the responsibility of the government to identify the factors that have adverse effects on hygiene and to remedy them immediately. Ovarian cancer, various complications related to the reproductive system, reproductive health problems etc. can be seen in women who are ignorant of health and hygiene with sexual and reproductive complications. This study addresses menstrual poverty or period poverty and thereby focuses on the social, cultural and economic factors that influence the development of period poverty among rural women in Sri Lanka.

Study problem

Identifying the factors that influence the development of menstrual poverty among women in Sri Lanka.

Objectives of the study

- To identify the social, economic and cultural factors contributing to the rise in period poverty among rural women in Sri Lanka.
- To identify the challenges and problems faced by Sri Lankan rural women in the face of period poverty and their social impact.
- To identify measures that can be taken to reduce period poverty.

2. Research methodology

This is research conducted using the qualitative study method and the respondents have been selected to cover all categories of women between the ages of 15-50, schoolgirls, teenagers, employed women and unemployed housewives, focusing on several rural areas of the Anuradhapura district of Sri Lanka. In order to obtain data from the participants, data was obtained through semi-structured interviews using a structured questionnaire. Using thematic analysis, the data obtained from the respondents through the interviews were filed according to the topic.

3. Findings and Discussion of the Study

For the study, using a sample of twenty-five women in the age range of 15-50 years, covering different educational, economic and social levels, information was collected using semi-structured interviews and a structured questionnaire, which covered the following points.

Several social, economic and cultural reasons could be identified which are the main reasons for the development of menstrual poverty especially among Sri Lankan women.

Accordingly, due to the lack of attention in the society towards the opus process of a woman, some women have to hide all the physical and mental sufferings that occur to them during this period from their family and their close ones. She often does not receive nourishment and support from Sri Lankan families or workplaces. It has become common for women to pay less attention to hygiene. Furthermore, in some rural societies, it is socialized that women should not bathe within the first two or three days of their menstruation, avoid eating meat, and avoid oily food. Accordingly, not getting the necessary nutrition for the body during menstruation is an adverse situation. Also, many women do not refer to products like tampons and period cups that can be used instead of sanitary napkins without a full understanding of them and how to use them. Many young women reject this because of the unwarranted fear that it will damage their hymen as they are to be worn. Due to different socialization and often, women do not use these products because of their partner's reluctance. But if you buy a product like this, it can be used for a period of time rather than spending a lot of money on sanitary napkins. Educating women about these and dispelling the myths that exist in them. The health department should

also do this. Due to these social and cultural reasons, period poverty among Sri Lankan women is gradually increasing. There is no clear way to get rid of them except to grow.

A woman's level of education has a strong influence on the formation of their ideologies about their health and hygiene. The following findings revealed by the study will make the above conclusions clear. Physical discomfort in the women used for the study is definitely seen during this period and it is clear that the monthly menstrual period adds some setback to women's daily work. Also, many of the respondents used for the study often take leave from the workplace due to any physical discomfort that occurs to them. It has become common for many schoolgirls to skip school due to the unwarranted fear of getting caught and getting stains on their white clothes. There is. But it should be understood that this is something that will have a strong impact on the country's economy, development and children's education. Findings on the prevalence of "menstrual poverty" in Sri Lanka, which refers to insufficient financial resources, cultural stigma and limited menstrual hygiene resources affecting menstrual period management, show that the majority of women reported menstrual problems and only a small number of them sought medical care. Furthermore, a minority of respondents had used "old clothes" as a sanitary product during their lifetime, highlighting the lack of access to proper menstrual hygiene products. With insufficient sanitary facilities, low education, low income, living in remote MOH areas, we can conclude that the menstrual poverty is increasing day by day because Sri Lankan women still do not have proper knowledge about health and hygiene.

Among the respondents who participated in the study, it was revealed that the number of sanitary napkins used by a woman during her menstrual period is at least three to four. Also, among the respondents who participated in the study, there were a group of people who used the same brand of sanitary napkin for a long time as well as those who used them. It has been found that the increase in the price of the brand has led to the use of other sanitary napkins and some women are switching to cloth pads instead. In addition, in many workplaces, schools, water facilities and facilities for regular waste disposal are at a very low level... Accordingly, due to the lack of these facilities in some rural schools in the Anuradhapura district selected for the study, it is necessary for schoolgirls to maintain menstrual hygiene and regular It has also become an obstacle to maintain cleanliness.

Safe modern hygiene methods that can be used instead of sanitary napkins are popular among women in other countries of the world today. Things like period cups and tampons make it easier for women to have their period, and it is an advantage for their wallet. Generally, a woman spends at least thirty years of her life. Lives with the menstrual process. During that period, if you buy sanitary napkins that can be bought in the market, in one sense at least two packets of sanitary napkins (i.e. sanitary napkins) If it is concluded that at least 20) are used, she will use 240 sanitary napkins per year and 7200 sanitary napkins for thirty years. Accordingly, the number of sanitary napkins used by women in a whole country is tons. An amount should be spent. Despite the whole world facing an economic crisis, sensitively paying attention to the menstrual process of women, which is a very natural phenomenon, is necessary for their health. Actions should be taken. Especially sanitary materials and sanitary napkins are rapidly rising prices, so that they can be produced at an affordable price or direct women to the use of other alternative hygiene methods, while maintaining their health and hygiene for themselves and their families. Good attitudes should be instilled in the women about the good for the development of the entire country.

4. Conclusion

Considering the current economic difficulties faced by Sri Lanka as a country, emphasizing the need to find solutions for the financial development of feminine hygiene products, the study of period poverty deserves more relevance. We recommend that comprehensive reproductive health education for adolescent girls and women, as well as efforts to reduce the financial

burden of menstrual hygiene products and awareness among women of safe modern alternative sanitary methods to improve menstrual management for women in Sri Lanka.

5. Keywords

Health problems, Menstrual poverty, Period poverty, Reproductive health, Sanitary products

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A Sociological Study on the Impact on the Social Welfare Process of Family Victims of Secondary Crime Affected by Drug Trafficking in Puttalam District (Based on Pallama Ruwaneliya Village)

B.M.T.L. Balasuriya[1], K.A.L.C. Kuruppu Aracchi[2] and M.M. Sihina Sandaruwan[3]

[1] *Department of Social Sciences, Faculty of Social Sciences and Languages, Sabaragamuwa University of Sri Lanka.* bmtlakruwan@gmail.com

[2] *Department of Environmental Management, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka.*

[3] *Department of Languages, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka.*

1. Introduction

According to Sri Lanka's National Dangerous Drugs Control Board (NDDCB), the total number of drug arrests in 2023 was over 80,000 which was a high growth compared to 2022 (Mahir, 2023). Morbidity and mortality from drug use have increased globally. According to the World Drug Report (2017), more than 30 million people worldwide suffer from substance use disorders. 0.6% of the global adult population is highly vulnerable to substance use disorders. Opioid drugs are the most harmful in the world, responsible for 70% of adverse health effects (Mahir, 2020). Drug trafficking, which is rapidly expanding throughout Sri Lanka has a high impact on family lives. Prohibited illegal drugs are sold using secret tactics. Due to this condition,relationship within the family unit including wife-husband and children-parents are affected, and drug trafficking has a direct impact on the formation of open and closed personality traits. Today , various measures are being implemented by the government to raid the drug trafficking that has spread throughout Sri lanka. The background for this research has been created how drug trafficking and distribution, which is widely identified in Puttalam district in North-West province of Sri Lanka, affects the related family members. The main objective of this study is to investigate the impact of drug trafficking on the socialization process of family secondary crime victims. Summustially, to study of the breakdown of family ties due to the ongoing process of drug trafficking and to study of the psychological distress of family members due to drug addiction.

2. Materials and Methods

This research was based on qualitative and quantitative research approach , using both primary and secondary data sources. Structured interviews and questionnaire method were used to collect of primary data. Purposive sampling has been used as the study sample. Accordingly, a group of eighty people were selected. There, representing the forty families of Ruwaneliya village in Pallama area of Puttalam district, an adult over fifty years of age and a youth between eighteen and thirty seven years of age were selected from each family. Ten people from ten randomly selected families were selected for structured interviews. Collected data was analyzed using Microsoft excel and SPSS software. Functional approach was used as the theoretical source for the research. Research studies, books, journals were used as secondary data sources.

3. Results and Discussion

According to field details, Drug Trafficking has spread throughout the Puttalam district and the production of alcohol and distribution of drugs can be identified among the families of Pallama-Ruwaneliya village. Drugs such as alcohol, ganja, drugs, babul, ice are widely distributed in the village. Drug use has also become popular among school-age children from the age of thirteen. Secondary victims include the head of the family who uses alcohol, as well as the wife and children of the family. That is, drug production and distribution has become more prevalent through them. In some cases, the wife indirectly intervenes in the production of alcohol, and its sale is also done by the wife. In such cases, children of the school age suffer severe hardships

and are also subjected to social marginalization. When the father of the family is more involved in drug use, it has a direct effect on the children.

The research will focus on how such exposure influences the emotional, psychological, and social well-being of family members, particularly children, and how it may alter their interactions with society, including trust, social relationships, and future behavior patterns. Additionally, the research will focus on the psychological distress experienced by family members, particularly the mental & physical challenges faced by those affected by a loved one's drug addiction. This includes exploring feelings of anxiety, depression, shame, and helplessness, as well as the long-term effects on family dynamics and individual well-being.

Family background related to drug trafficking has a strong impact on children's social cognitive development process. Children living in this kind of social framework adapt to the closed socialization process, and in some cases tend to the open socialization process. Persecution and neglect from the society can identify a nature of children hating the society. Family-based drug trafficking also serves as the initial stage for children to turn to illicit activities such as alcohol use and distribution, and then the use of weapons. The attitudes, thoughts and wishes of the children including the wife living in this victimized family framework mostly show a sense of uneasiness towards the society. It can be identified through the following note.

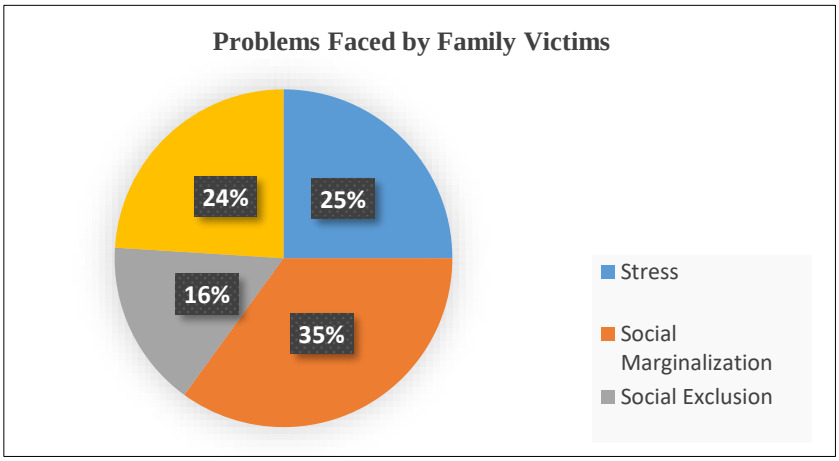


Figure 1: Field study data - Problems faced by victimized families

In some cases, the long-term occurrence of alcohol and drug trafficking has some effect on the mental functioning of the children of those families. As a result, weak personality traits, weak socialization traits are formed. Information about it can be identified through the following table.

Table 1: Field Study Data – Defective Personality Traits/ Antisocial Traits Faced by Family Victims and Factors Contributing Thereto

Weak personality traits/ antisocial traits	Reasons for it
Fear of facing society	Husband or father drinking alcohol
Inability to make a proper decision in a problem	Distribution and sale of alcohol
Looking excessively embarrassed at a problem	Harassment by drunken husband/ father

In contrast to the weak social support, in some cases, after bearing the pressure and then putting the pressure on the opposite of that pressure, it can be recognized at a rare level in the society. These secondary victims are associated with situations in which individuals are created with strong personality traits that are better understood by society, compared to weak personality traits. As a result of bearing too much social pressure, it can be identified as a new trend among children and wives in these family environments that the mental strength needed to cope well with it is created. It can be seen that some people who adapt to drug trafficking from time to

time continue this drug trafficking as a result of focusing on their economic status rather than their social status in order to survive in the society. Although it has some impact on the individual social welfare process, the attention related to it has been limited. Open economic policy can also be identified as one of the turning points in the process.

4. Conclusion

Due to the various effects of drug trafficking on the individual's life, how the secondary victims are affected can be studied physically through two main parts., the wife and children of the family are severely psychologically affected. Due to the weak personality traits that affect the individual's psyche, a group of people who lack self-awareness and cannot make proper decisions are created. Individuals' socialization processes are positively and negatively influenced by drug trafficking. While the positive impact is very limited, the negative impact shows rapid growth. This shows a direct impact on matters such as the future hopes and interests of the secondary victims. Thus the legal aspect should be enforced and the broad change in social awareness should be created.

5. Acknowledgment

The contribution of several people in the process of completing this report should be appreciated. First of all , I express my sincere gratitude to B.M.T.L. Balasuriya, K. A. L. C. Kuruppu Aracchi and M. M. Sihina Sandaruwan from Sabaragamuwa University and Rajarata University of Sri Lanka.

6. Keywords

Drug trafficking, Family members, Illicit activities ,Socialization process

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An Investigative Study on the Chronological Changes Related to the Life expectancy (Dreams) of the Sri Lankan Youth Community from 1948-2024

H.K. Pabasara, R.M.N. Sandamali

Department of History and Archaeology, University of Ruhuna, Matara. kavinn178@gmail.com

1. Introduction

Life expectations, aspirations, or ambitions can be regarded as the fundamental forces that give meaning to an individual's existence. Nevertheless, these expectations can vary significantly and are susceptible to substantial fluctuations over time (Gunawardena, 2020). Additionally, they can occasionally alter the social, economic, and political landscape of a nation. This can also serve as a significant factor. A thorough exploration of this critical social phenomenon will prove more beneficial for the advancement of a nation's society. The hopes and dreams of contemporary youth in Sri Lanka are influenced by an intricate interplay of personal ambitions and external factors, within the social, economic, and political frameworks that have evolved throughout various historical epochs (De Silva, 2010). This research is conducted by posing inquiries such as how these expectations were established, whether these expectations align with our actual needs or can be realized, if our nation or society possesses the requisite foundation and potential, and whether the youth's aspirations within a nation or society are met or dashed. The objective of this study is to discern the impacts on the nation or society and foster a necessary dialogue to address them thoughtfully and critically, irrespective of the expectations formed by individuals at large. It seems that the dreams of today's youth in Sri Lanka are molded by a complicated interplay of personal desires and external factors. Numerous young individuals earnestly strive to achieve both personal and professional aspirations, and there exist elements that both support and hinder these goals (World Bank, 2020). Many young people genuinely seek success in careers that resonate with their passions and interests. The increasing enthusiasm for technology, innovation, and entrepreneurship signifies a true desire to make a meaningful contribution to the economy and society. However, when examining each decade since 1950, these expectations have shifted dramatically in relation to those time periods (Hettige, 2000). In these contexts, it can be inferred that social influences on personal expectations (dreams) have played a significant role. Factors such as social literacy, globalization, and modern technology have shown a pronounced impact. Essentially, there are both positive and negative trends in these circumstances. The research has endeavored to encompass all these dimensions as thoroughly as possible and conduct the investigation.

2. Materials and Methods

This research is fundamentally grounded in a qualitative research methodology, which prioritizes the exploration of complex phenomena through the collection of rich, descriptive data rather than relying solely on numerical metrics. The research strategically employed a library survey as the primary method for gathering essential data, ensuring a comprehensive approach to understanding the subject matter. This meticulous process involves the systematic gathering and thorough analysis of data derived from a diverse array of literary sources, which include not only traditional books and academic journal articles but also various reports, alongside the utilization of electronic databases such as Google Scholar and JSTOR, which provide a wealth of scholarly information at our fingertips. Additionally, insights gleaned from various social media platforms will be intricately woven into the research to effectively capture and reflect contemporary discussions, as well as emerging trends regarding youth aspirations in today's rapidly evolving society. Through the application of both content analysis and thematic analysis, the collected data will be rigorously examined for identifiable patterns and

recurring themes, allowing for a deeper understanding of the underlying motivations and desires that shape the aspirations of young individuals.

3. Results and Discussion

Although one can argue that the life expectations (dreams) that people have or are expected to have are purely personal things, it is seen that the influences based on external factors play a powerful role in creating those expectations. Through the socio-cultural potential of 1948, the expectations of the youth community at that time have experienced significant transformations to the present day. Many things such as employment, living conditions, marriage, education, social attitudes, etc. The study provides a comprehensive understanding of how the life aspirations (dreams) of young people have evolved over time (Gunawardena, 2020). It will reveal the pattern of change from nationalistic goals to globalized technology-based aspirations (dreams) and the factors that led to these changes. It will mainly identify the influences and study what social, political and economic factors have shaped youth aspirations over the decades (Hettige, 2017). Revealed by This includes understanding the impact of major events such as economic liberalization, civil unrest, globalization, technological advancements, and political reforms, while examining how personal desires interact with social forces. It will highlight the extent to which dreams are shaped.Thus, the study contributes to the understanding of the youth's ability to shape their own future. Impact on national development The study seeks to uncover the role that youth aspirations play in shaping the social, economic and political direction of the country (National Youth Services Council, 2021). Linking the changing life aspirations of young people with broader national trends provides an understanding of how these aspirations both facilitate and hinder Sri Lanka's progress. By identifying such challenges, today's youth are able to gain an understanding of the systemic problems that prevent them from realizing their dreams. These challenges may include unemployment, economic inequality, political corruption and inadequate access to education (Jayawardena, 2000). Highlighting these barriers can inform policymakers about areas in need of reform. By comparing historical and modern aspirations, the study clearly contrasts the dissonance between the aspirations of young people in different eras. This ranges from economic factors such as shifts from government jobs and stable careers to priorities such as entrepreneurship, innovation and moving towards global opportunities in the modern era (Kariyawasam, 2018). Assessing the feasibility of youth aspirations in the current socio-economic environment. The conditions extend to whether our society owns them.Assessments of how these goals can be achieved and whether there are infrastructural opportunities and support systems in place for young people to succeed, and recommendations for policy and social change based on findings to better support young people's changing, evolving aspirations, aspirations (dreams) The study is thus able to help propose recommendations for policy makers and educators on how to deliver. The study emphasizes that reforms in education, job creation, empowerment of socio-cultural programs and development of technological infrastructure will go a long way in creating the necessary environment to meet the needs of the youth and realize their dreams (Sarvodaya, 2020). It will help identify ways to balance personal ambitions with the collective good of society. The research will contribute to a historical understanding of how cultural values, social norms and expectations have changed in Sri Lanka with the impact of globalisation, media and technology (United Nations Development Programme, 2014). Overall, the study provides resources for academics, policy makers and social leaders to better understand the life aspirations (dreams) of Sri Lanka's youth community and support the conditions to achieve them.

4. Conclusion

This study seeks to provide a deeper understanding of how the life aspirations (dreams) of the Sri Lankan youth community have evolved over time, shaped by the interaction of individual aspirations and external social factors. These highlight the complex dynamics of how aspirations change in response to political, economic and social forces and how these affect the

course of the nation. Early youth aspirations were more local and traditional and focused on the development and security of social, cultural and religious foundations nationally. Away from the stable government jobs, today's youth are globally connected and able to create job opportunities through real and virtual platforms. Thus, the desire for success is no longer confined to national boundaries and can be experienced in conjunction with global trends in technology, entrepreneurship and innovation. However, the study also identifies persistent challenges such as economic instability, social inequality and political corruption. Achieving these aspirations and managing these expectations calls for a more critical and self-reflective approach and also addresses the dual nature of their potential to create social progress and the risk of disillusionment when these expectations (dreams) cannot be realized in the current environment. Thus, the background of Sri Lankan youth experiencing significant changes in their life expectations from 1948 to 2024 and the fact that these changes are deeply influenced by the changing social, economic and political landscapes as well as external factors such as globalization and technological advancement is also highlighted. In the post-independence era, youth dreams have largely been shaped by nationalistic fervor, desire for education and upward social mobility. Many young men aspired to join the civil service or traditional professions such as law, medicine and teaching, reflecting the nation-building ethos of the era. The liberalization of the Sri Lankan economy and the introduction of open market policies in 1977 saw a drastic change in youth aspirations. There was an increased focus on entrepreneurship, private sector employment and international migration, and with financial stability and personal success becoming a priority, economic opportunities abroad influenced many to shape their dreams. The rapid advancement of technology and globalization in the 21st century has had a transformative effect on youth expectations. Careers in technology, innovation and entrepreneurship are increasingly sought after, with a strong focus on contributing to the digital economy. However, alongside this, there is an increasing awareness of social issues, climate change and global citizenship, on which more holistic and globally aware aspirations have been shaped. Over the decades, political instability, economic crises and social changes have been significant in changing youth expectations. Has played a role. For example, periods of civil unrest and economic downturns have led to increased frustration and increased emigration as a means of achieving personal success. Conversely, periods of stability have experienced greater optimism and opportunities for local engagement. However, many young people today aspire to achieve personal and professional success, and their ability to realize these dreams is often limited by systemic issues such as unemployment, economic and socio-political issues. Corruption and economic inequality. Despite technological advances and improved literacy rates, many young people still face challenges in accessing quality education, stable employment and social mobility.

5. Keywords

Challenges, Job, life aspirations, Youth.

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Caste Discrimination and Child Marriages: A Case Study on the Gadi Community in Sri Lanka

K.D. Dushmanthi Silva and N. Roshani Madusha

Department of Sociology, University of Ruhuna, Sri Lanka. dushmanthi.silva@gmail.com

1. Introduction

The socio-cultural framework of South Asia is strongly ingrained with caste discrimination, which persists in various aspects of life regardless of constitutional amendments intended to eliminate it. Caste still plays a significant role in determining social status in Sri Lanka today, influencing power dynamics, opportunities, and resource access, especially for marginalized groups like the Rodiyas also named as "Gadi". This group has been historically stigmatized as "untouchable," and as such, they have been pushed to the bottom of the caste hierarchy, where they have been forced to live in poverty and perform menial labour. They have also been excluded from mainstream society (Silva, 1999). Among the most pressing issues facing the Gadi community is the persistence of child marriage, which is strongly associated with poverty, restricted educational opportunities, and deeply ingrained gender stereotypes. Socioeconomic variables and cultural customs that value early marriage as a way to lessen financial obligations and secure dowries have an impact on child marriage in Sri Lanka (De Silva, 1997). Their marginalized status within the broader caste system, along with traditional gender roles, places girls at higher risk of early marriage and its associated negative outcomes, such as limited education, unemployment, poor health conditions, and continued cycles of poverty (Kumar, 2021, Jayasundara,2011).

The interconnection of caste and gender is critical to understanding the experiences of Gadi women and girls, who face different forms of discrimination. Addressing these issues requires a holistic approach that considers both caste and gender as interconnected forces that shape social inequities in Sri Lanka. This study intends to investigate the nexus between caste and socially sanctioned child marriage in the Gadi's community. The objective of this study is to explore how far the caste practices put girl children in vulnerable conditions. Examining the socio-cultural aspects of child marriages in this context will enrich the understanding of how caste and gender are embedded in certain practices.

2. Materials and Methods

This study employs a qualitative approach with a strong emphasis on ethnographic tools and techniques, enabling an in-depth exploration of caste discrimination and child marriages within the Rodiya community in Sri Lanka. A purposive sampling method is used to select participants who are members of the Rodiya community in Manawa, in Kurunegala District, with a focus on individuals who have direct or indirect experiences with caste discrimination or child marriages. Key informants such as community leaders, midwives, the MoH office, the Development officer assigned from Divisional Secretariat Kuliyapitaya East, school teachers, and family members are also included to gain diverse perspectives. A total of 30 participants were interviewed until data saturation was achieved. Semi-structured interviews were conducted with midwives, government officers, and teachers and face-to-face interviews were done with the community to gather personal narratives and insights into how caste discrimination and child marriages affect their lives. An interview guide was used to ensure that key themes such as social stigma, economic factors, and family dynamics were covered.

Furthermore, the researcher's observation was also embedded which helped to capture some non-verbal indications and community relationships.

3. Results and Discussion

The following discussion is based on the findings from the qualitative research conducted among members of the Gadi community in Sri Lanka, focusing on caste discrimination and child marriage practices. Data was collected through interviews and observations with the Gadi community in Manawa, Kurunegala District including women who were married as children, local leaders, teachers, midwives, and parents. Historically, the primary source of income for the Gadi people has been begging; they were also referred to as fortune tellers. The Gadi people in this Manawa village are skilled in the tradition of making baskets from cane. They sell their goods to Kegalle, Warakapola, and Kurunegala, and other neighboring places. When they go to sell the items, the villagers give them money in addition to food and other necessities. Unfortunately, only a small number of families currently make baskets; instead, their primary source of income is the collection of discarded plastic and iron goods, which they then segregate and sell to large enterprises. Interviews with community members highlighted that caste-based exclusion is a major factor shaping the lives of the Gadis. The study sample described how they are often denied access to public services, education, and employment opportunities due to their caste status. This systemic marginalization limits their ability to improve their socio-economic conditions, reinforcing cycles of poverty that drive child marriage. It is noted that early marriage is viewed as a survival strategy in a context where opportunities for advancement are limited. Furthermore, the study found that economic hardship is a significant factor in child marriage within the Gadi community. Parents often see early marriage as a means of reducing the financial burden on the family. Girls are frequently married off to reduce the number of dependents in the household.

In the Gadi community, early marriage is a kind of tradition. From history itself, they were socially and economically marginalized by the major society. Thus, women did not acquire any other opportunities in society than to continue their traditional domestic role. These gender-stereotyped practices tend to be early marriages among girls and child marriage is a socially acceptable norm among this community. Patriarchal power relations further enhanced the tradition. Most crucially the lack of access to education worsens this situation. Many girls in the Gadi community drop out of school at a young age due to financial constraints and the perceived lack of value in continuing education. Even the talented and motivated children who entered secondary school in the town were discriminated against by their classmates and as a result, some dropped out of school. "Other students give a strange look on us, they do not share food and books with us, so I felt like a stranger in the class and later dropped the school", this revealed how they were excluded in the school. The low education of parents and lack of knowledge of reproductive health among the elderly people in the community further put girls in a vulnerable situation. Since it is a common practice or considered a norm, elderly women do not see any harm in marrying their girl child at an early age. However, the study revealed that they were fully aware of the marriage law in the country but still child marriage is prevalent. Parents from either party or any other elder relatives safeguard these young couples. The effort taken by Midwives and school teachers to minimize child marriage has become pointless as most of the mothers do not support it. Principle and some teachers stated, "There is no support from family to keep children away from the sexual risk behaviors as parents take it lightly". Furthermore, the study revealed that there are no restrictions on sexual behavior in

the community, and young children are trying to experience sexual relationships. They end up as a married couple. As they were below the accepted age, they hid the case for some period, and when they turned in to the age of 18, they registered their marriage, and at that time some were giving birth to a child as well. Soon after they started living together the couple wanted to have a baby, since infertility is one reason for a boy to leave the girl. For them, marriage registration is not important until the certificate is needed for entrance to the school. Rarely do parents arrange a marriage for their children as a custom. Mostly these marriages are intra-caste marriages and some boys find their partners from outside as they travel in the suburbs. Inter-caste marriages are not very significant and even if it is a case or two those out caste members adopted this Gadi community and were excluded from their original caste groups.

Analysing the main findings concludes that social discrimination is the main factor that keeps girls and women in vulnerable conditions. Due to the social exclusion, these groups were isolated from mainstream society, and as a result, access to education and opportunities for economic development are low. Low education keeps them away from the trust on risk factors of child marriages. This was identified during the interviews with midwives and teachers. Strong cultural practices and behaviours are barriers to making aware the community of the risk factors. Those marginalized people have their world within this locality and maintain the same lifestyle patterns as their parents. Family background and socialization have a high impact on child marriages.

4. Conclusion

The research indicates that caste-based marginalization disproportionately affects women and girls, aggravating gendered vulnerabilities within disadvantaged populations. Social exclusion and negative attitudes of society towards marginalized people, patriarchal power relations, poverty, low education, and gender stereotypes are factors that influence child marriage within this caste group. Employing Pierre Bourdieu's theory of social and cultural capital influences social mobility. This community was deprived not only of economic capital but also of social capital. To better understand the delicacies of marginalized experiences and develop more fair and equitable social policies in Sri Lanka and elsewhere, future research and interventions should adopt intersectional and critical theoretical frameworks.

5. Keywords

Caste, Child-marriage, Discrimination, Gender

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Evaluating the Effectiveness of Mindfulness Practices on Teacher Well-being and Professional Performance in the Colombo District

Ven. B Nandabodhi

Faculty of Graduate Studies and Center for External Examinations, Buddhist and Pali University.

1. Introduction

Teaching is widely acknowledged as one of the most demanding professions, requiring teachers to juggle numerous tasks such as lesson planning, classroom management, and meeting students' diverse needs. These responsibilities often lead to stress and emotional exhaustion, which can impact teachers' mental health, performance, and the learning environment. *Mindfulness, a mental training practice that cultivates present-moment awareness, has been shown to be effective in reducing stress and improving well-being in various professions, including education. Despite the growing body of research on mindfulness in education globally, there is limited research exploring its effectiveness within the Sri Lankan context particularly in addressing the specific challenges faced by teachers in urban areas like Colombo. This study seeks to fill this gap by assessing how mindfulness impacts teacher well-being and professional performance in Colombo, particularly addressing burnout and emotional regulation.* In the context of Sri Lanka, where education standards are high and the workload can be overwhelming, teachers in urban areas like Colombo are particularly prone to burnout. Mindfulness, a mental practice rooted in Buddhism, focuses on present-moment awareness and non-judgmental observation of thoughts and emotions. It has been successfully applied in various professions, especially teaching, to improve mental well-being. This study aims to explore the effectiveness of mindfulness practices in reducing stress, promoting emotional regulation, and enhancing the work-life balance of teachers in Colombo.

1.1.Literature Review

Mindfulness in Education: Mindfulness has been introduced into educational settings to help teachers cope with stress and prevent burnout. Research by Jennings et al. (2011) shows that mindfulness practices can increase self-awareness, emotional intelligence, and stress resilience in educators. A study by Beshai et al. (2015) reveals that mindfulness is particularly beneficial for teachers working in high-stress environments. *Research is needed to explore how cultural and societal factors influence the adoption of mindfulness practices in Sri Lankan classrooms.*

Teacher Stress and Burnout: Teacher stress and burnout have been extensively studied in the context of education. Kyriacou (2001) notes that stress arises from the interaction between high job demands and limited resources to cope with these demands. Mindfulness practices can help alleviate this stress by promoting relaxation and improving teachers' ability to manage their workload. *Mindfulness may be particularly beneficial in Sri Lanka's urban education sector, where high workloads and resource constraints exacerbate stress levels.*

Emotional Regulation and Mindfulness: Emotional regulation refers to the ability to manage and respond to emotional experiences. According to Gross (2002), emotional regulation is crucial for professionals who work in high-stress environments, such as teachers. Roeser et al. (2012) found that mindfulness practices help individuals develop better emotional regulation skills, which can enhance their professional performance and personal well-being.

Mindfulness and Teaching Effectiveness: Teachers who practice mindfulness tend to demonstrate better focus and attention in the classroom, which positively affects their teaching performance. Meiklejohn et al. (2012) found that mindful teachers are more attentive, patient, and effective in handling classroom challenges.

2. Materials and Methods

This study employed a mixed-method approach, incorporating both quantitative and qualitative data. A survey was distributed to 100 teachers in the Colombo district who had been practicing mindfulness for six months. In addition, semi-structured interviews were conducted with 20 of these teachers to gain deeper insights into their experiences. *The quantitative and qualitative data were analyzed separately and then integrated during the interpretation phase to ensure comprehensive findings. Quantitative analysis focused on descriptive and inferential statistics, while qualitative analysis applied thematic coding to uncover patterns and deeper insights. The effectiveness of mindfulness was operationalized through three key indicators: changes in stress levels, improvements in emotional regulation, and enhancements in professional performance. This focused approach ensures clarity and specificity in measuring the outcomes.* The participants consisted of primary and secondary school teachers from public and private schools in Colombo. A stratified sampling method was used to ensure diversity in terms of age, gender, teaching experience, and the level of mindfulness experience.

Quantitative Data: A structured questionnaire was developed to assess the impact of mindfulness on stress levels, emotional regulation, work-life balance, and teaching effectiveness. The questionnaire used a Likert scale (1–5) to measure responses. Qualitative Data: Interviews were conducted to explore personal experiences, challenges, and benefits of practicing mindfulness.

Quantitative data from the survey was analyzed using SPSS. Descriptive statistics were used to summarize the data, while inferential statistics (t-tests, ANOVA) were used to determine significant differences between groups.

3. Results and Discussion

- Descriptive Statistics

Out of the 100 respondents, 65% were female, and 35% were male. The average age of participants was 40 years. Of the respondents, 78% reported practicing mindfulness at least once per day, while 22% practiced it occasionally. *Although significant improvements were observed in stress reduction (M = 4.5 pre-mindfulness, M = 2.3 post-mindfulness), the lack of a control group limits the attribution of these effects solely to mindfulness.*

Variable	Mean	Standard Deviation
Stress Reduction	4.5	0.65
Emotional Regulation	4.3	0.75
Work-life Balance	4.0	0.85
Teaching Effectiveness	4.4	0.70

- Inferential Statistics

A paired sample t-test was conducted to compare pre- and post-intervention stress levels among teachers who practiced mindfulness. There was a significant difference in the stress levels before mindfulness (M = 4.5, SD = 0.65) and after six months of mindfulness practice (M = 2.3, SD = 0.85); $t(99) = 5.48$, $p < 0.01$.

Before Mindfulness	After Mindfulness,	t-value,	P-value
4.5	2.3	5.48	<0.01

A one-way ANOVA was conducted to explore the impact of mindfulness on teaching effectiveness. The results indicated a significant difference between teachers who practiced mindfulness regularly and those who did not ($F(2, 98) = 4.68$, $p < 0.05$).

- Qualitative Findings

Thematic analysis revealed four key themes:

- Reduced Stress: Many teachers reported feeling more in control of their emotions and less overwhelmed by their workload after practicing mindfulness. One teacher remarked, "Before mindfulness, I felt I was constantly rushing. Now, I feel calmer and more able to handle difficult situations."
- Improved Emotional Regulation: Teachers noted that mindfulness helped them manage their emotions better, particularly in challenging classroom situations. "I used to react impulsively, but now I take a moment to breathe and respond more thoughtfully," said one participant.
- Better Work-life Balance: Mindfulness enabled teachers to separate work stress from their personal lives. Many mentioned feeling more relaxed at home and able to enjoy time with their families without being preoccupied with work-related issues.
- Enhanced Classroom Interactions: Teachers reported that mindfulness helped them become more present and attentive to their students' needs. This led to improved classroom management and better teacher-student relationships. One teacher explained, "Mindfulness allows me to focus on my students without getting distracted by the pressures of the job."

Comparison with Existing Literature

The findings align with prior studies (e.g., Roeser et al., 2012) on mindfulness improving emotional regulation and job satisfaction. However, the lack of a comparable non-mindfulness group or baseline data limits the ability to generalize findings. Future research should address these limitations. The findings of this study are consistent with previous research on the benefits of mindfulness in education. Teachers who engaged in regular mindfulness practice experienced lower levels of stress, better emotional regulation, improved work-life balance, and enhanced teaching effectiveness. These findings suggest that mindfulness can be an effective tool for addressing teacher burnout and improving overall job satisfaction. One of the key findings was the significant reduction in stress levels among teachers who practised mindfulness. *While these findings align with previous research, further research is needed to establish a causal link between mindfulness and these outcomes.* This aligns with research by Beshai et al. (2015), who found that mindfulness can help individuals manage stress by promoting relaxation and focus. Additionally, the improvements in emotional regulation reported by participants are consistent with Roeser et al. (2012), who found that mindfulness can enhance emotional intelligence.

4. Conclusion

Mindfulness practices offer a valuable resource for teachers in managing the demands of their profession. This study has demonstrated that mindfulness can significantly reduce stress, improve emotional regulation, promote work-life balance, and enhance teaching effectiveness.

However, claims about mindfulness should be interpreted cautiously due to methodological constraints, such as the absence of a control group and limited Sri Lanka-specific literature. Further research exploring diverse educational settings, long-term effects, and cultural factors is essential to strengthen the evidence base. However, further research is needed to explore the long-term effects of mindfulness, its impact on different educational settings, and the underlying mechanisms through which mindfulness exerts its benefits. Given these benefits, mindfulness should be incorporated into teacher training and professional development programs in Sri Lanka. Further research is needed to explore the long-term effects of mindfulness on teacher well-being and student outcomes. Future studies could also examine the impact of mindfulness on different educational settings, such as rural schools or schools with high-stress environments. By integrating mindfulness into the education system, Sri Lanka can create a healthier and more supportive environment for teachers, ultimately benefiting students and the broader educational community.

5. Key words:

Emotional Regulation, Mindfulness, Teacher Stress, Teaching Effectiveness

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Literature Review: Green Space and Well-being

N.S. Jayathunga

Sabaragamuwa University, Belihuloya, Sri Lanka. nadeesara@ssl.sab.ac.lk

1. Introduction

Green spaces (GS) are a major component of human life and environmental assets, playing a vital role in urban planning. Most countries prioritize this concept this concept because they need to plan and develop healthy, green cities. Green spaces are a highly effective means of promoting sustainable health and well-being (Rao, 2021). They offer numerous benefits, including improvements in human health, happiness, and quality of life. Urban green spaces are a significant investment that local authorities can make on behalf of citizens and their well-being (WHO, 2017).

Green spaces benefit both humans and animals. They are instrumental in reducing the urban heat island effect (Wang and Akbari, 2016), mitigating noise and air pollution, naturally cleansing the atmosphere, enhancing natural beauty, and providing environmental education. Psychologically, they offer mental relaxation, peace, quiet, leisure, and recreational opportunities. Furthermore, green spaces are integral to urban planning as they significantly enhance the city's environment.

However, due to rapid urbanization, population growth, development projects, commercial buildings, and construction, green spaces are diminishing rapidly. The UN has recommended a per capita green space of more than 30m² per person, while the WHO suggests it should not be less than 9.5m² per person (Jayasinghe, Hemakumara, and Hewage, 2017). Despite their essential role in improving human well-being and quality of life, urban green spaces are becoming increasingly insufficient for city residents. Therefore, the primary objective of this research paper is to explore the effects of green spaces on people's well-being.

The main objective of this study is to review the impact of green spaces on the well-being of urban residents. The specific objectives are to understand the impact of green spaces on psychological well-being, to examine their effects on physical well-being, and to explain their influence on social well-being. Although there has been considerable research on the relationship between green spaces and well-being across various fields, there is limited sociological research on this topic. This notable gap will be addressed by exploring the importance of green spaces for enhancing human quality of life and well-being. This study focuses specifically on physical, mental, and social well-being and is particularly timely and relevant.

2. Material and Methods

This study employed a historical approach, reviewing past empirical research on the impact of green spaces on the well-being of urban residents. A total of 50 research papers published between 1990 and 2021 were selected as sampling units for this analysis. The purposive sampling method, a type of non-probability sampling, was used because a comprehensive sampling frame was unavailable and the entire population was not accessible. Literature sources for this review were found through electronic searches.

The selected research papers represented a diverse range of journals, including the International Journal of Environmental Research and Public Health (12 papers), BMC Public Health (10 papers), Health and Place (7 papers), Urban Forestry and Urban Greening (5 papers), Management of Environmental Quality (4 papers), and Landscape and Urban Planning (4 papers). Additionally, several journals were represented by one paper each: Journal of Humanities and Social Science, International Journal of Environmental Health, Early Life

Environmental Health, Journal of Environmental Psychology, Cities, Social Science and Medicine, Sustainability, and Environment.

Data analysis began with data entry and processing using Microsoft Excel. Key factors were summarized according to main categories and headings. The columns included the author(s), journal name, year of publication, country where the research was conducted, sample size, unit of analysis, data type, data collection techniques, theoretical approach, definitions, and key findings related to the impact of green spaces on physical, social, mental, and environmental well-being. Descriptive analysis was employed for this data analysis.

Regarding the characteristics of the sample of research articles, the majority (64%) were published between 2014 and 2019. The largest proportion of articles came from the United Kingdom (26%), followed by China and the USA. The International Journal of Environmental Research and Public Health published the most papers, representing 24% of the sample. Concerning the sample units, most studies focused on residents as the unit of analysis (30%), while 20% centered on adults. Most studies in the sample were concerned with the impact of green spaces on psychological well-being and many employed psychological approaches in their research.

3. Results and Discussion

Considering the main and specific objectives, the following are the major findings from the reviewed research articles regarding the impact of green space on the well-being of urban people, based on the three types of well-being. According to psychological well-being, green spaces have a positive impact on psychological disorders, particularly stress, depression, and anxiety. Many studies have found that green spaces directly influence stress reduction. People living near parks or other green spaces experience less stress compared to those in areas without such amenities. Forest bathing, for example, has been shown to directly reduce stress, lower blood pressure, and decrease heart disease, thereby positively impacting mental health (Mas et al., 2015). Additionally, window views of green spaces in high-rise buildings contribute to better mental well-being. Research indicates that individuals with higher psychological well-being are more likely to lead healthier and longer lives.

Related to physical well-being, the study found that the impact of green space on physical well-being is significant, promoting an active lifestyle. Access to green spaces helps people maintain proper physical fitness and reduces the risk of various diseases. Studies have shown that engaging in physical activities in natural settings, such as green exercises, not only provides relaxation but also helps alleviate mental disorders (Pretty, J. N. et al., 2007). People are generally more motivated to engage in regular physical activities when they have access to nearby green spaces. The benefits of walking for older adults (Godbey, G., 2009) and Green Space impacts on the everyday lives of older adults, for physical well-being were significant (Finlay, J. et al., 2015).

Considering social well-being the study found that urban green spaces enhance social inclusion and community cohesion. The social benefits of green spaces include recreational opportunities, aesthetic enjoyment, strengthened social ties, and educational opportunities (Giuffré, L., 2019, Mensah, C. A. et al., 2016). Green spaces reduce social isolation, foster the development of new relationships, and provide spaces for sharing experiences with peers. There was a relationship between social relations and health (Dinnie, E. et al., 2013). They also support group activities and enjoyment, contributing to improved social well-being. Green gatherings create opportunities for building social relationships, which can positively impact overall health. In summary, the literature review indicates that the overall impact of green space on physical, mental, and social well-being is positive.

4. Conclusion

Based on the above facts, several conclusions can be drawn. Most research studies have concentrated on the impact of green spaces on psychological well-being and health. A significant number of these studies were published between 2014 and 2019. The majority of this research originated from the United Kingdom, with many studies appearing in the International Journal of Environmental Research and Public Health. The survey method, particularly through questionnaires, was the most commonly used data collection technique, and residents were the most frequently chosen sample unit in the literature. According to Psychological well-being, many studies have found that green spaces positively influence psychological well-being. Specifically, green spaces help mitigate psychological distress, cope with everyday stress, and foster a positive mentality. People with higher psychological well-being are more likely to lead healthier and longer lives. Based on physical well-being research indicates that engaging in physical activities or exercises in green spaces has a positive impact on physical well-being. Green exercises contribute to improved fitness and help prevent various diseases. Based on social well-being urban green spaces positively influence social well-being by enhancing recreational opportunities, education, aesthetic enjoyment, and social communication. These spaces help reduce social isolation, foster community ties, and support group activities. Considering the Sri Lankan context, research has mainly focused on city sustainability, urban green space standards, and urban greenness surveys. However, there is a noticeable lack of sociological studies exploring how green spaces impact the well-being of urban people. As the Practical recommendations and policy implications for urban planners, green spaces should be designed as community hubs that foster social interaction and a sense of belonging. Planners can include spaces for cultural events, communal gardens, or open-air markets to facilitate engagement and strengthen social ties among residents, incorporating more passive green areas that encourage relaxation and mindfulness, particularly in busy urban environments, Urban design regulations should encourage such as green roofs, rain gardens, and urban wetlands that contribute to environmental sustainability and resilience while enhancing the aesthetic and recreational value of urban spaces. Overall, while there is substantial research on the psychological, physical, and social benefits of green spaces, more sociological studies are needed to understand their impact on urban well-being. The insights gained from this literature review can help direct future researchers and scholars by highlighting existing knowledge gaps and proposing potential avenues for further investigation and intervention.

5. Keywords

Green Space, Well-being, Impact, Literature Review

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Navigating Tradition and Transformation: A Study on Social Change among the Thelingu Caste in Sri Lanka (Special reference to Anuradhapura Mihinthale Siyabalagaswewa Thelingu community)

S.I. Boralasse and J.P.S. Jayasinghe

Department of Social Sciences, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka. saubhagya92jds@gmail.com

1. Introduction

The Caste system in Sri Lanka is considered one of the major key measurements of social stratification. This concept is nourished by the traditional hierarchy and it is mainly connected with marriage, occupation, social interactions and so on. Even though the Sinhala caste system is considered to be connected with the Indian caste system, it showcases differentiations from the Indian system. According to social anthropologists like Ralph Peris and Bryce Rayan *'caste is a social institution which emerged through feudalistic society'* (Peris, 1956). Ralph Peris stated that the most systematic caste system in Sri Lanka was established in the Kandyan era. The Sinhalese caste system dominated the society while becoming a legal and systematic social institution during the Kandyan period. However, with the period the concept of caste is playing an invisible role in contemporary society (Peris, 1956). When evaluating the statuses of the Sinhalese caste system, mainly two castes represent rigid positions in the hierarchy. The castes belonging to these positions are higher castes and lower castes. But when it comes to the intermediate castes those show some controversy for their own places. Based on anthropological studies done about the caste system in Sri Lanka, the caste system and its function have been bound to the village structure. Considering the implications of the Sinhalese caste system, there are can be identified four stands out levels such as, *Govigama caste, Down South caste, Service caste, socially marginalized caste.* The Thelingu caste in Sri Lanka is one of the discriminated castes that have been traditionally engaged in the lowest-paid jobs and are discriminated within the large Sinhalese and Tamil populations. They are from the intricate multilayered structure of the caste system that is prevalent in Sri Lanka, although it differs from the Indian caste system by having a gentler slope, social and all-encompassing implications that shape men's lives do not differ significantly from the Indian one. Traditionally, most of the depressed castes in Sri Lanka, including the Thelingu, performed low-status work. In Sri Lanka's traditional caste system, occupations usually place people into categories such as agricultural labourers, fisherfolk, fortune telling, monkey dancing or snake charming, and ritual workers. Forcibly, certain castes were compelled to perform very lowly jobs considered ritually "unclean". This is traceable through the broader social hierarchies imposed by the wider Sinhalese and Tamil communities, for whom, more rural areas have limited social mobility and more commanding traditional caste identities (Pfaffenberger, 1982).

1.1 Changing Patterns of Caste System

In the earlier period in Sri Lankan history, the caste system stood out as a main feature of society however colonialism, globalization, modernization and social reforms have changed caste relations in Sri Lanka in many ways.

Colonial Influence and Transformation: With the colonization, colonial power impacted the Sinhalese caste system. Duncan stated that, with the colonial era, the caste system became more formalized and rigid. Also, in the period of British colonialism, some recognized castes becoming a part of their administration by reinforcing caste boundaries more fluid (Ducan, 1984). Colonial rulers especially the British, used the division of caste to control natives, by

imposing several rules, placing certain castes in positions of power while marginalizing other castes. Due to this propaganda, caste-based inequality enhanced in Sri Lanka and at the same time, lower castes were often engaged in duties which are considered impure or lower and they were relegated to the margins of society (Rogers, 1982). Moreover, colonialism fostered class polarization in a way that caste became increasingly related to wealth and education. Such a shift weakened the traditional occupations of many lower castes and made them dependent on the colonial economy.

Urbanization and Modernization: With Sri Lanka's urbanization, especially in the post-colonial period, rigid caste hierarchies have loosened up in cities and towns where occupational boundaries are blurred. For the most part, social mobility continued to increase, especially among the youth with access to education and higher opportunities within the formal economy (Gunawardena, 2017).

Political and Social Movements: With the rise of Buddhist Nationalism in the 20th century, several social justice movements have challenged the traditional caste system. Many social groups in Sri Lanka including lower castes and traditionally marginalized, have decided to acquire political representation in the country and voiced for rights and equal opportunities in education and employment. For example, political parties like the Sri Lanka Freedom Party and the Janatha Vimukthi Peramuna have advocated anti-caste policies.

Intermarriage and Social Interaction: Marriage is considered to be an intra-caste factor in the historic period in Sri Lanka. This is a discipline well defined and protected by the ancient people. But today, marriage has become the most important factor contributing to the decline of the Sinhalese caste system and the young generation tends to do inter-caste marriages, which are increasingly common, particularly in urban areas.

2. Materials and Methods

- Study Area: The research was carried out in Thelingu village, which is situated in Siyabalagaswewa within the Mihinthale Divisional Secretariat of the Anuradhapura District. The area has always been recognized for its special socio-cultural dynamics, hence being an appropriate site to study the processes of modernization on caste-based communities.
- Main Research Objective: *Examine the effect of modernization on the Thelingu caste community.*
- Sub Objectives: Analyze changes over time in social and economic conditions of the community, identify factors influenced by modernization that have shaped these changes
- Methodology and Sample: Methods of data collection included participant observation, semi-structured interviews, and life history narratives using ethnographic methods. This approach allowed a rich comprehension of daily life practices, customs, and shifting relations in this community. A comparative method analysed historical and contemporary conditions within the community by contrasting various practices, roles, and structures between past and present. The research involved a purposive sample of 10 from the Thelingu community, ensuring that representatives were drawn from both genders and roles. That is, 5 males and 5 females characterized the purposive sample, with a focus on key informants such as the village leader, Kali Amma, to provide comprehensive insights into the socio-economic and cultural transitions experienced by this community.

3. Results and Discussion

The Thelingu community's transformation over the years offers a well-documented sociological case study that encompasses the changes in social structure, legal systems, economic practices, and cultural identity. These changes can be considered via sociological approaches such as modernization theory, structural functionalism, and symbolic interactionism showing the correlation between tradition and modernity. The transformation of the Thelingu community creates a valuable sociological case study, reflecting shifts.

The transition from Nomadic to Settled Life: In the past, the Thelingu community was largely a nomadic society, a lifestyle often linked with subsistence economies and wide networks through kin (Lenski, 1966). They were involved in a movement from one place to another along with the establishment of temporary shelters near the lakes for hunting cloves and scallions which harmonises with the functionalist perspective that structures are erected to solve the survival needs reflecting the ends in society (Durkheim, 1893). Nevertheless, it is now the reality due to the process of modernization which has made them embrace a sedentary lifestyle. Adopting land ownership and having a legal title with them represents a movement towards full integration into the formal institutions which as mentioned in the modernization theory traditional societies become more structured which is in effect bureaucratic (Rostow, 1960).

Changes in Social Structure: The transition from extended family systems to predominantly nuclear families are a reflection of wider sociological trends in transitioning communities. The shift towards nuclear families, as explained by structural functionalism in Parsons & Bales (1955), is a result of new economic and social demands that better accommodate the labour and mobility needs of modern societies. The existence of 52 nuclear families in Thelingu village indicates a lack of extended family members, reflecting changes in social organization due to environmental and economic factors.

Changing Legal Frameworks and Authority: The legal transformation of the community from traditional customary (chief-based) to engaging with the formal legal institutions of the state to solve disputes marks the process of dissolution of Gemeinschaft (community) relations, to make way with Gesellschaft (society). This is consistent with Tönnies (1887). The decreasing adherence to traditional authority by the younger generation structurally characterizes the dialectic of tradition and modernity that leads to greater engagements with state institutions, such as the police, to ensure the order for inter-generational interactions.

Modernization of Livelihoods: The economic diversification of the Thelingu people shows how modernization has affected the profile of traditional occupations. Earlier occupations like fortune telling, monkey dancing, and snake charming were too deeply entrenched into their cultural identity. But today, the community has taken to fishing, incense stick business, and labour, reflecting economic shifts. This transition is in line with Weber's theory of rationalization and refers to how traditional economic systems adapt to more formalized and efficient ways to obtain maximum profit (Weber, 1905). Despite this transition, the continued domination of fortune-telling by women witnesses the power of cultural capital (Bourdieu, 1986), whereby inherited practices remain current in contemporary situations.

Education and Social Mobility: Education is an intergenerational mirror of change in the community. The older generation of Thelingu community relied on non-formal, practice-based knowledge but, parents now aspire to formal education for their children. This is consistent with the human capital theory (Becker, 1964) which argues that investment in education increases productivity at both an individual and societal level. The attendance of children at

Siyabalagaswewa Primary School, and Thammanawa School demonstrates how the community is integrated into wider educational systems.

Marriage and Rituals: Marriage traditions have morphed from simple traditional rites to officially recognized registrations and extravagant present-day ceremonies, reflecting the complex balance of tradition and modernity. The inclusion of such practices as pre-wedding photo shoots and legal registration attest to the altering notions of identity and status in place of modernity foreseen by the market economy.

Cultural Retention Amid Modernization: Despite significant modernization, the community retains strong cultural ties, as seen in the continuity of traditional practices like fortune-telling. This duality resonates with Giddens' (1991) concept of reflexive modernization, where individuals and communities navigate tradition while adapting to the demands of modernity.

4. Conclusion

The transformation of the Thelingu caste in Sri Lanka represents a valuable case study regarding dynamic social change, blending tradition with modernity. The community's evolution from a nomadic lifestyle to a settled lifestyle showcases the intricate interplay between sociological theories and lived realities. At the same time, modernization also redefined their legal frameworks, social structures, and economic patterns aligning with modern society. However, the existence of some cultural practices like fortune-telling illustrates the resilience of traditional identity apart from these shifts. Both situations reflect the tension between change and continuity, demonstrating the role of agency in navigating transformation. The adaptation of the Thelingu community to formal institutions like education, and legal and economic institutions encompass the universal applicability of modernization and structural functionalism. The experience of the Thelingu community merely underscores that reflexivity-a necessary adjustment in every instance of social transformation-always remains important. Meeting modern systems while hanging on to the cultural core, they are an embodiment of tradition and progress going hand in hand, an enviable balancing act that plays a part in proving how flexible humanity can be.

5. Keywords

Modernization, Thelingu Caste, Transformation, Tradition

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Paternity Leave and Work-Life Sustainability: A Comparative Legal Analysis of Sri Lankan Paternity Leave Laws with Japan and the Philippines

S.T.D. Sandanayaka

Faculty of Law, General Sir John Kotelawala Defence University. thisarasandanayaka@gmail.com

1. Introduction

The evolving landscape of family structures and gender roles has sparked increased discussions on parental leave policies, particularly paternity leave. As society progresses towards gender equality and shared caregiving responsibilities, the significance of paternity leave in facilitating work-life balance has gained greater acknowledgment. Paternity leave allows fathers to play a more active role in early childcare and challenges traditional workplace norms that typically endorse gender-specific caregiving roles.

Sri Lanka's paternity leave framework is constrained and inadequate, as it is only accessible to government employees. This leaves fathers in the private sector without legal entitlements, impeding advancements toward equitable caregiving responsibilities. Japan and the Philippines provide paternity leave to employees across public and private sectors, showcasing a broader commitment to supporting working fathers. Japan offers substantial leave benefits for fathers, while the Philippines ensures paternity leave across all industries, fostering work-life balance and more balanced caregiving dynamics within families.

Therefore, this research compares paternity leave regulations in Sri Lanka, Japan, and the Philippines, examining legal frameworks, eligibility criteria, and leave policies. The objective is to explore the influence of paternity leave policies on the sustainability of work-life balance and gender equality. The analysis will pinpoint obstacles and suggest enhancements to fortify Sri Lanka's paternity leave regulations, ensuring better support for employed fathers and promoting equitable caregiving practices.

2. Methodology and Methods

The study adopts both doctrinal and comparative research methodologies. Using the doctrinal approach, the research examines the existing paternity leave regulations in Sri Lanka, Japan, and the Philippines, drawing from primary sources like laws and statutes and secondary sources such as academic papers, legal literature, and online resources. Through the comparative research approach, the study investigates the distinctions and similarities in the legal systems of these nations, to offer well-informed suggestions for enhancing paternity leave laws in Sri Lanka. The research employs a qualitative method, analyzing legal documents, policies, and scholarly interpretations to present a comprehensive legal assessment of paternity leave and its impact on work-life balance.

3. Results and Discussion

Paternity Leave Laws in Sri Lanka:

In Sri Lanka, the regulations for paternity leave mostly apply to public sector workers as outlined in Chapter XII of the Establishments Code. All public officers, whether permanent, temporary, casual, or trainee employees, have the right to take three days of paid paternity leave when their child is born. This leave should be availed within three months of the child's birth. To qualify for this leave, employees need to present a marriage certificate, a medical certificate confirming the birth, or the child's birth certificate (Ministry of Public Administration and Home Affairs, 2006). Notably, there are no specific paternity leave provisions for employees in the private sector, indicating a gap in Sri Lanka's labor laws.

Paternity Leave Laws in Japan:

Japan has implemented paternity leave laws to combat its declining birth rate and promote gender equality. The government encourages fathers to take paternity leave to ensure a fairer distribution of childcare responsibilities between men and women, which could also enhance women's involvement in the workforce. The paternity leave system, known as papa kyūka, permits male employees to take up to eight weeks off after the birth of their child (Yani, 2023). Following this initial period, they can also take childcare leave until the child reaches one year old. This leave can be taken continuously or in several blocks (Yani, 2023).

To be eligible for paternity leave, the employee must have been working for the same company for at least one year and provide a birth certificate. The system primarily targets employees, excluding directors and sole proprietors. Limited-term contract workers are eligible, provided their contracts extend beyond the child's 8th month for Childcare at Birth Leave or 18th month for Childcare Leave (Kimoto, 2024).

Paternity benefits include receiving 67% of the father's salary during Childcare at Birth Leave and the first 180 days of Childcare Leave. This payment reduces to 50% after 180 days but remains non-taxable. Additionally, if both parents are employed, the Dad and Mom Childcare Leave Plus system allows for extended leave until the child reaches 14 months old, thereby supporting shared parenting (Kimoto, 2024). These initiatives are crucial in helping Japanese families manage work and childcare more effectively.

Comparative Analysis of Sri Lankan Paternity Leave Laws and Japan Paternity Leave Laws:

When comparing the paternity leave regulations in Sri Lanka and Japan, notable differences emerge regarding the extent, duration, and perks offered. In Sri Lanka, paternity leave is primarily available to public sector workers under the Establishments Code, providing a mere three days of paid leave upon the birth of a child. This leave must be taken within three months after the birth, and employees must present documents like a marriage certificate or the child's birth certificate to qualify. In contrast, Japan has established a more extensive paternity leave system to promote gender equality and support families. Fathers in Japan can take up to eight weeks of leave immediately after the birth of their child, with the option to extend this through childcare leave until the child reaches one year of age. Eligibility for this leave includes a minimum employment duration of one year, and it covers various types of employees, including limited-term contract workers. Financially, Japanese fathers benefit significantly from the system, receiving 67% of their salary during the initial childcare leave period, which later adjusts to 50% but remains tax-free (Kimoto, 2024). Furthermore, Japan's Dad and Mom Childcare Leave Plus initiative promotes shared parenting by allowing both parents to take extended leave together, thereby fostering a more balanced division of childcare responsibilities. This striking difference underscores a significant gap in Sri Lanka's labor laws, where private sector employees do not have any statutory paternity leave provisions, emphasizing the need for reform to align with modern family needs and support a balanced work-life dynamic. Overall, Japan's proactive approach demonstrates a commitment to integrating paternity leave as a crucial component of family and workforce policy, while Sri Lanka's limitations highlight significant challenges in supporting fathers during a critical transition.

Paternity Leave Laws in the Philippines:

In the Philippines, Republic Act 8187, passed in 1996, regulates paternity leave, providing seven days of paid leave for married male employees for the first four deliveries of their legitimate spouse. The purpose of this leave is to assist fathers in supporting their partners during recovery and caring for their newborns. Furthermore, the Expanded Maternity Leave Act (Republic Act 1120) permits mothers to transfer up to seven days of their maternity leave to fathers, potentially extending paternity leave to a total of 14 days. To be eligible for paternity leave, the employee must be legally married, living with their spouse, and employed at the time

of the child's birth. Applications for paternity leave should be submitted within a reasonable timeframe surrounding the delivery, generally two days before the expected date, and must be filed within 60 days after the birth (Baird, 2019). Employers are not allowed to deny this leave; failure to comply may result in fines or imprisonment for company officers. Despite the progress, many advocates argue that two weeks are inadequate for fathers to bond with their children and effectively support their partners (Paris, 2019). Various organizations, including local online communities, are advocating for longer paternity leave to promote more involved parenting and challenge traditional gender stereotypes. They stress that parenting is a joint effort and that extended leave would enable fathers to fully participate in childcare, thereby improving family dynamics and enhancing the overall well-being of children (Azzarra,2022). As conversations about parental leave persist, the call for more comprehensive paternity policies mirrors a growing recognition of the significance of fathers in early child development.

Comparative Analysis of Sri Lankan Paternity Leave Laws and Philippines Paternity Leave Laws:

The laws concerning paternity leave in Sri Lanka and the Philippines differ significantly in terms of their provisions and application. In Sri Lanka, the provision for paternity leave is mainly for public sector workers under the Establishments Code. It allows for three days of paid leave following the birth of a child. This leave must be taken within three months and is subject to the submission of specific documents, such as a marriage certificate or the child's birth certificate. Notably, there are no legally mandated paternity leave benefits for private-sector employees, highlighting a substantial gap in employee rights and support for fathers in the workplace. In contrast, the Philippines has implemented more extensive paternity leave regulations through Republic Act 8187, which grants married male employees seven days of paid leave for the first four deliveries of their legitimate spouse. This leave aims to support fathers in their roles during recovery and early bonding with their newborns. Additionally, the Expanded Maternity Leave Act allows mothers to transfer up to seven days of their maternity leave to fathers, potentially extending paternity leave to a total of 14 days. Eligibility requires legal marriage and cohabitation, with strict timelines for applications. Importantly, non-compliance by employers can lead to legal consequences. Despite these advancements, advocates in the Philippines argue that the duration of leave remains insufficient for meaningful father involvement and support, prompting calls for longer paternity leave to foster collaborative parenting and challenge traditional gender roles. Overall, while Sri Lanka's paternity leave framework is limited and exclusive, the Philippines demonstrates a more progressive approach, albeit with room for further enhancement to promote father engagement in early child development.

4. Conclusion and Recommendations

The comparison of paternity leave laws in Sri Lanka, Japan, and the Philippines highlights significant differences, indicating broader implications for gender equality and work-life sustainability. Sri Lanka's limited provisions, which only apply to public sector employees and provide three days of leave, starkly contrast with Japan's comprehensive system that allows for up to eight weeks of paid leave and supports shared parenting. The Philippines, while more advanced than Sri Lanka, still falls short with only seven days of paid leave, although it does allow for possible extensions. These disparities emphasize the urgent need for Sri Lanka to reform its paternity leave laws to encourage greater father involvement in early childcare, promote equitable caregiving responsibilities, and align with international standards. The inadequacy of current provisions not only hampers family dynamics but also perpetuates traditional gender roles that restrict fathers' participation in caregiving.

To improve Sri Lanka's paternity leave framework, the following recommendations are suggested: Firstly, the government should enact statutory paternity leave for all employees, regardless of sector, to ensure equal rights for private sector fathers. It is recommended to

provide a minimum of two weeks of paid leave to allow sufficient time for bonding and support. Secondly, eligibility criteria should be expanded to include cohabiting partners, recognizing diverse family structures. Thirdly, awareness campaigns should be launched to educate employers and employees about the benefits of paternity leave, thereby encouraging cultural shifts towards shared parenting responsibilities. Fourthly, the government could consider a gradual increase in paid leave benefits, possibly linking them to the father's length of service, to incentivize long-term employment while supporting family well-being. Lastly, regular assessments of paternity leave policies should be conducted to adapt to changing societal norms and ensure that they effectively promote work-life balance and gender equality in Sri Lanka.

5. Keywords

Comparative Legal Analysis, Paternity Leave, Sri Lanka, Work-Life Sustainability

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Postgraduate Student's Attitudes toward the Lesbian and Gay Community in The Western Province, Sri Lanka

Hasanka P. Fernando

Cardiff Metropolitan University, UK. hasanka.piyumal.fernando@gmail.com

1. Introduction

This study explores the attitudes of postgraduate students in Sri Lanka's Western Province toward the lesbian and gay community, focusing on how these views are shaped within a context where traditional values meet increasing calls for inclusivity and equality (WFD, 2021). Using frameworks like queer theory and intersectionality, the research aims to provide insights into the specific cultural and educational influences that affect perceptions of sexual orientation in Sri Lanka. By examining postgraduate students' attitudes, this study contributes to the growing understanding of sexual orientation issues in the country. The objectives are to identify overall attitudes among postgraduate students toward the lesbian and gay community and to assess whether gender differences exist in these attitudes.

2. Materials and Methods

2.1 Materials

Two questionnaires were used in this study. The first collected demographic data (age, gender, province of the university, and educational level). The second used the Homosexual Attitude Scale (HAS) to measure participants' attitudes toward homosexuality. The HAS is in a Likert scale format. Developed by Kite and Deaux in 1986, the HAS comprises 21 questions with five response options: "strongly agree," "agree," "neutral," "disagree," and "strongly disagree.

2.2 Methods

2.2.1 Participants

A sample of 100 was selected: 50 males and 50 females. Participation criteria stated the selection of participants based on age, with a minimum of 24 years of age, and currently following a postgraduate program at government or private universities in the Western Province of Sri Lanka.

2.2.2 Design

This research used a quantitative research method with a cross-sectional design. Quantitative research enables the measurement of variables such as behaviors, opinions, attitudes, and other factors in a quantifiable manner, facilitating the generalizability of data to a broader population. In this study, the independent variable was education level, and the dependent variable was attitudes.

2.2.3 Procedure

Data was collected using a random sampling technique. The questionnaire was distributed using WhatsApp. Each respondent individually participated in this research by clicking on an online questionnaire survey. Participation was voluntary, and consent was provided electronically through the online survey before answering the questions. There was an option to discontinue at any point if they felt uncomfortable. Data analysis was done for 100 samples after collecting the data. Results obtained after analyzed data.

2.2.4 Method of Analysis

The raw data was analyzed by scoring the responses to the HAS questionnaires according to the author. Data analysis was done using SPSS. A t-test was conducted to determine whether gender differences exist regarding postgraduate attitudes toward the homosexual community.

3. Results and Discussion

3.1 Results

3.1.1 Postgraduate Student's Attitudes toward the Homosexuality

Table 1. Descriptive Statistics

N	Valid	100
	Missing	0
Mean		75.4900
Median		77.0000
Mode		78.00[a]
Std. Deviation		11.79582
Variance		139.141
Range		72.00
Minimum		29.00
Maximum		101.00

According to Table 1, the questionnaire yields scores ranging from a minimum of 29 to a maximum of 101, with an average score of 37.5. The mode, indicating the most frequently occurring score, is 78. The mean score is calculated at 75.49, indicating a relatively high overall score. This suggests that postgraduate students have more favorable attitudes toward the lesbian and gay community.

3.1.2 Gender Difference between Postgraduate Male and Female

Table 2. Independent Sample T-Test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Total	Equal variances assumed	3.301	.072	-.076	98	.470	.940	-.18000	2.37110	-4.88537	4.52537
	Equal variances not assumed			-.076	96.896	.470	.940	-.18000	2.37110	-4.88604	4.52604

An independent-sample t-test was conducted to compare postgraduate student's attitudes toward the homosexual community and gender differences. There was no significant difference in the scores for males (M= 75.40, SD=11.20496) and females (M=75.58, SD=12.47216), conditions; t (98) = -0.076, p=0.940. Therefore, there is no gender difference between postgraduate male and female student's attitudes toward the lesbian and gay community.

3.2 Discussion

A positive attitude towards homosexuality among postgraduate students has been identified within this research. It has been further supported by the findings of Passani and Debicki's 2016 research who found that the majority of their respondents among the students showed positive attitudes toward homosexuality (Passani & Debicki, 2016). However, such findings are not unanimous as seen by the research conducted by Swank and Raiz in 2010. They found that university social work students, in particular those oriented toward religious social work, held a hostile attitude toward homosexuality and homosexual people (Swank & Raiz, 2010). The present study also found no significant gender difference in postgraduate student's attitudes toward the homosexual community. Research conducted in 2016 by Chi and Hawk among

2644 Chinese university students revealed that women had more positive attitudes towards homosexuality than men (Chi & Hawk, 2016). The final recommendations include expanding this research to demonstrate how attitudes toward homosexuality differ for various demographic factors: cultural background, religion, level of education, age, ethnicity, and others. By analyzing all of these variables at an even greater depth, the research can provide deeper and more precise insights into what shapes attitudes toward the lesbian and gay community.

4. Conclusion

This study explores the postgraduate students' attitudes towards the lesbian and gay community in the Western Province of Sri Lanka. Previous studies have revealed that although the majority of Sri Lankans are not opposed to the community, discrimination and inequality still occur. The study explored the attitudes of postgraduate students, who are representative of a knowledgeable and influential category within the population, to take into account their attitudes on this issue. Indeed, the current sample of 100 participants established that students generally had positive attitudes toward the lesbian and gay community, with no significant differences between male and female students. This suggests that higher education may encourage more accepting attitudes in this homosexual community.

5. Acknowledgment

I take this opportunity to express my heartfelt appreciation to Cardiff Metropolitan University for their immense efforts with research. It has always guided, supported, and developed accordingly with expertise to complete this research successfully.

6. Keywords

Attitudes, Homosexuality, Postgraduate, Sri Lanka

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The Effectiveness Study of Novice Monk Education: By Evaluating the Significance of the Ultimate Goal of Buddhism

B. SunandaBodhi

Faculty of Graduate Studies, Buddhist and Pali University of Sri Lanka, Sri Lanka. sunandaboodhi@gmail.com

1. Introduction

The complex interplay between education systems and the spiritual development of novice Buddhist monks has been a topic of longstanding interest and debate within the religious and academic spheres. This study aims to investigate the impact of contemporary education approaches on the training of novice monks and their alignment with the fundamental teachings of Buddhism, which center on the perception of human suffering and its ceaselessness (Bodhi, 2005). Rooted in the foundational principles espoused by Lord Buddha, the Buddhist tradition emphasizes the attainment of enlightenment and the ultimate cessation of suffering as the ultimate goal for its adherents (Gethin, 1998). However, as modern education systems have become increasingly prevalent, there is a need to critically examine how these systems may influence the spiritual formation and development of novice monks, who are tasked with upholding and propagating the core tenets of the Buddhist faith (Sayadaw, 2017). To this end, the researcher has undertaken an immersive and extensive fieldwork approach, staying for more than five years within a novice monk institute, observing and engaging with the daily lives, training, and educational experiences of these young monastics (Sayadaw, 2017). This sustained engagement has provided the researcher with a unique and nuanced understanding of the challenges and opportunities inherent in the current education system as it relates to the spiritual growth and ultimate enlightenment of novice Buddhist monks. By drawing on this rich empirical data and the researcher's deep familiarity with the subject matter, this study delves into the complex interplay between modern education and the traditional Buddhist teachings, exploring how the former may hinder or facilitate the latter in the context of novice monk training (Bodhi, 2005). The findings of this research aim to contribute to a more comprehensive understanding of the relationship between education and spiritual development within the Buddhist monastic tradition, ultimately informing efforts to align novice monk education with the ultimate goal of Buddhism: the eradication of human suffering. The primary objective of this research is to investigate the impact of contemporary education systems on the training and development of novice Buddhist monks, and to explore how these systems align (or fail to align) with the fundamental teachings of Lord Buddha and the ultimate goal of attaining enlightenment and the cessation of suffering.

2. Materials and Methods

To address the research objectives, this study employs a qualitative research approach, leveraging the valuable insights and experiences gained by the researcher through an extended immersion within a novice monk institute over the course of more than five years. The primary data collection method involves a thematic analysis of written, electronic, and digital sources related to the education and training of novice Buddhist monks. This includes an in-depth review of curricula, training manuals, and institutional policies, as well as an examination of scholarly literature and historical records pertaining to the evolution of novice monk education.

3. Results and Discussion

Evolution of Buddhist Education: The early Buddhist tradition emphasized the practice of meditation as a means to end the cycle of suffering and rebirth, a core tenet of Buddhist doctrine. This is evidenced by the Buddha's own attainment of enlightenment through deep meditation, as well as the central role of meditation in traditional Buddhist monasticism (Gethin, 1998). In addition to meditation, the early Buddhist community also practiced the recitation of paritta, or protective chants, as a form of spiritual practice and education (Gombrich, 1988). These chants were seen as having the power to provide blessings and protection, and were an important part of the Buddhist educational system in the early centuries. However, over the course of the 2,600 years since the time of the Buddha, the Buddhist educational system has evolved considerably. As Buddhism spread and adapted to different cultural contexts, the emphasis on meditation and monastic life was sometimes supplemented or even supplanted by a greater focus on textual study and engagement with the laity (Bechert, 1995). This shift is evidenced by the emergence of a class of "non-meditation" Buddhist monks who, as you note, have expressed a desire to pursue mainstream university education, similar to the contemporary education system. This reflects a broader trend in which Buddhist education has become more integrated with, and influenced by, the secular education system (Swearer, 2010). It is important to note that this evolution of Buddhist education does not negate the continued importance of meditation and other traditional practices within certain Buddhist contexts. However, it does highlight the adaptability and dynamism of the Buddhist tradition, as it has sought to remain relevant and accessible to new generations of practitioners (Tambiah, 1976).

Contemporary secular education systems on novice monks: The study's findings reveal a concerning divergence between the contemporary education systems for novice Buddhist monks and the fundamental teachings of Lord Buddha, which emphasize the attainment of enlightenment and the cessation of suffering as the ultimate goal. Most scholarly works have traditionally focused on how monks can achieve this goal through the practices of meditation, ethical conduct, and spiritual development. However, the researcher's immersive experience within a novice monk institute has shed light on the significant impact of the commercialization and influence of mainstream education systems on the Buddhist community, including the novice monks. The study found that novice monks are increasingly compelled to pursue common academic subjects and sit for examinations alongside lay students, a departure from the traditional monastic focus on spiritual cultivation. Furthermore, the aspirations of many novice monks appear to have shifted towards becoming teachers or lecturers, rather than solely pursuing the path of emancipation. This shift was corroborated through the researcher's interviews with the novice monks themselves. In stark contrast, the researcher also identified an institute of novice monks that has actively resisted the adoption of traditional education systems, prioritizing the attainment of Nirvana over academic pursuits. The novice monks in this institute expressed a deep commitment to the fundamental teachings of Lord Buddha and a resolute determination to follow the spiritual path towards the cessation of suffering. These findings underscore the pressing need for substantial changes in the education system for novice Buddhist monks, to align it more closely with the ultimate goal of Buddhism. The commercialization and influence of mainstream education have posed significant challenges to the spiritual development and enlightenment of these young monastics, necessitating a re-

evaluation of the educational frameworks and strategies employed within the Buddhist community.

Development of spirituality: The early Buddhist tradition emphasized the practice of meditation as a means to end the cycle of suffering and rebirth, a core tenet of Buddhist doctrine. This is evidenced by the Buddha's own attainment of enlightenment through deep meditation, as well as the central role of meditation in traditional Buddhist monasticism (Gethin, 1998. In addition to meditation, the early Buddhist community also practiced the recitation of paritta, or protective chants, as a form of spiritual practice and education (Gombrich, 1988). These chants were seen as having the power to provide blessings and protection, and were an important part of the Buddhist educational system in the early centuries. However, over the course of the 2,600 years since the time of the Buddha, the Buddhist educational system has evolved considerably. As Buddhism spread and adapted to different cultural contexts, the emphasis on meditation and monastic life was sometimes supplemented or even supplanted by a greater focus on textual study and engagement with the laity (Bechert, 1995). This shift is evidenced by the emergence of a class of "non-meditation" Buddhist monks who, as have expressed a desire to pursue mainstream university education, similar to the contemporary education system. This reflects a broader trend in which Buddhist education has become more integrated with, and influenced by, the secular education system (Swearer, 2010). It is important to note that this evolution of Buddhist education does not negate the continued importance of meditation and other traditional practices within certain Buddhist contexts. However, it does highlight the adaptability and dynamism of the Buddhist tradition, as it has sought to remain relevant and accessible to new generations of practitioners (Tambiah, 1976). The shift towards a greater emphasis on textual study and engagement with the laity in Buddhist education, rather than a sole focus on meditation, can be traced back several centuries. As Buddhism spread and adapted to new cultural contexts, monasteries and educational institutions began incorporating more secular subjects and pedagogical approaches (Bechert, 1995). This evolution was particularly pronounced in regions where Buddhism interacted extensively with other religious and educational traditions, such as in East Asia. Here, the rise of "scholastic" Buddhist monks who were highly trained in Buddhist texts and philosophy, but not necessarily expert meditators, became more common (Welch, 1967).

4. Conclusion

The Buddhist education system is crucial for the survival of a country, the establishment of a good society, and the preservation of Buddhism for future generations. Historically, it primarily focused on meditation and the attainment of Nirvana. Unfortunately, in the contemporary period, this practice has diminished among novice monks. Instead, they often prioritize becoming teachers or lecturers, neglecting the path to Nirvana. There is a pressing need to reform the educational system for monks. Researchers have identified an institute for novice monks that integrates meditation from childhood with traditional education, emphasizing the path to Nirvana. This approach is essential for the development of novice monk education globally.

5. Keywords

Emancipation, Novice’s education, Sustainable development, Lecturers

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The Impact of Lack of Sexual Education and Reproductive Methods on Achieving Sexual and Reproductive Health Sustainability in Sri Lanka: A Study Among Galle District A-Level Students

Achini I. Dissanayake[1] and N.H.K.N. Amalsha[2]

University of Kelaniya. achinidissanayake06@gmail.com

[2] *University of Colombo.*

1. Introduction

Sexual and reproductive health is not only a critical aspect of individual well-being but also a pivotal element of sustainable development. In Sri Lanka, inadequate access to comprehensive sexual education and reproductive health services continues to pose significant challenges, particularly for adolescents and young adults. The lack of formal education on topics such as safe sex practices, contraception, and reproductive health leaves young people vulnerable to unintended pregnancies, sexually transmitted infections (STIs), and misinformation (Kumar et al., 2017). These gaps are especially concerning given their direct impact on achieving the United Nations' Sustainable Development Goals (SDGs), particularly Goal 3: Good Health and Well-Being. Especially, emphasizes ensuring healthy lives and promoting well-being for all at all ages, including sexual and reproductive health services, while Goal 5 seeks to achieve gender equality by ensuring women and girls have control over their reproductive choices (UNFPA, 2018).

In Sri Lanka, the cultural stigma surrounding discussions of sexuality further complicates efforts to provide youth with the knowledge and resources they need. Without proper education, many young people rely on unreliable sources of information, contributing to the cycle of poor sexual health outcomes and perpetuating gender inequalities. (Seneratna, 2020). The failure to address these issues not only hinders progress toward achieving SDGs but also undermines the long-term sustainability of public health systems. A holistic approach to sexual and reproductive health education is essential for empowering individuals, particularly adolescents, to make informed decisions about their bodies and futures. This study focuses on the Galle district and investigates how inadequate sex education affects the sexual and reproductive health of high school student in Sri Lanka. The lack of comprehensive sexuality education leaves students vulnerable to unintended pregnancies, sexually transmitted infections (STD), and misinformation. While existing literature highlight gaps in sexuality education, there is limited research on how these gaps specifically affect high school student and contribute to public health challenges, gender inequalities, and setbacks in achieving the Sustainable Development Goals (Jinadu & Odesanmi, 1993; Kapinga & Hyera, 2015). This study aims to fill these gaps and inform more effective education policies and public health interventions.

2. Materials and Methods

In this sociological research, the Galle district was selected as the research field, focusing specifically on six schools from the Galle Municipal Council and Baddegama Divisional Council. A total of 40 students were chosen through a simple random sampling method. This smaller sample size allowed for more in-depth engagement with each participant, enhancing data consistency and reliability while addressing practical constraints like time and budget. Data collection was conducted via an online semi-structured questionnaire, and an inductive approach was used in the thematic analysis to identify patterns and themes emerging from the data. Quantitative data was analyzed using SPSS, and secondary data was also utilized where necessary to support the research findings.

3. Results And Discussion

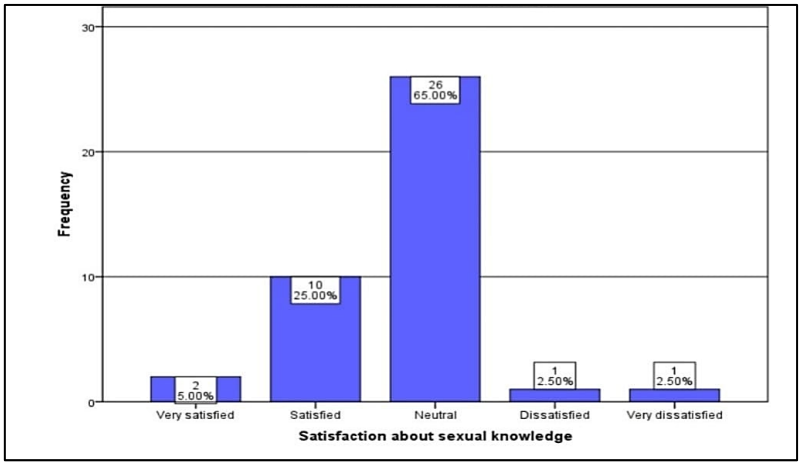


Figure 1: Satisfaction about sexual knowledge

It appears from the above graph that most students (65%) expressed a neutral opinion about their satisfaction with their sexual knowledge, reflecting uncertainty about the adequacy of their understanding. Additionally, 25% of students reported feeling satisfied with their knowledge. However, a small portion of the sample expressed dissatisfaction, with one student indicating they were dissatisfied and another stating they were very dissatisfied, representing a minority opinion. These findings suggest that while some students feel informed, there remains a significant portion with mixed or uncertain perspectives on their level of sexual education.

Further, the findings of this study reveal multiple barriers contributing to the non-implementation of formal sexuality education in schools. The absence of comprehensive national policies creates a vacuum, leaving schools without clear guidelines on sexual education. Bureaucratic inefficiencies further delay policy execution, demonstrating the need for public institutions to prioritize sexual education as a key component of national health and education strategies. These systemic failures argue for the development of robust national frameworks and streamlined administrative processes to facilitate progress.

Additionally, conservative leadership in schools, driven by fears of cultural backlash, plays a critical role in resisting sexual education programs. This highlights the argument that schools need balanced approaches, addressing cultural sensitivities while ensuring students receive essential reproductive health information. The fear of controversy underscores the importance of community engagement to mitigate opposition and foster a supportive environment (Sommart and Sota, 2013)

Furthermore, the lack of coordination between the health and education sectors, along with resource deficiencies, such as inadequate funding and lack of trained staff, represents significant structural issues. This suggests the argument for increased investment in teacher training and resource allocation to ensure schools are equipped to deliver effective sexual education. In addition, cultural and religious conservatism also emerges as a major barrier, with cultural taboos and religious opposition discouraging open dialogue on sexuality. This argues for the need to challenge societal norms and create a space for inclusive discussions on sexual health education. Moreover, parental misconceptions and fears about sexual education reflect the necessity for better communication between schools and parents to address concerns and misconceptions, ensuring broader support for formal sexuality education programs (Felman, 1990).

Therefore, the absence of knowledge about reproductive methods significantly affects the sexual and reproductive health outcomes of A/L students in Sri Lanka. Without adequate information on contraception, safe sex practices, and reproductive health, students may engage

in risky sexual behaviors, leading to unintended pregnancies, sexually transmitted infections (STIs), and other health issues. Accordingly, Sri Lanka has seen a significant rise in teenage pregnancy and sexual abuse, with 28 cases of teenage pregnancy reported in the first half of 2024. Also, in the first half of 2024, 268 child abuse and other child-related complaints were reported to the National Child Protection Authority from the Galle district (National Child Protection Authority, 2024). Moreover, in 2023, there were 104 reported HIV cases among individuals aged 15-24 in Sri Lanka. During the first quarter of 2024, 28 cases were recorded, indicating a continuation of youth HIV infections (National STD/AIDS Control Program, 2024). These numbers highlight the ongoing vulnerability of this age group to HIV and stress the need for enhanced sexual education and awareness programs targeting young people to mitigate further spread and promote safe practices. Addressing gaps in reproductive health knowledge is critical to reducing these rates in the future.

4. Conclusion

This research highlights the pressing need for comprehensive sexual education and awareness of reproductive methods among A/L students in Sri Lanka. The findings reveal that many students possess limited or uncertain knowledge about sexual and reproductive health, with gaps in formal education exacerbating the issue. The lack of clear national policies, conservative leadership in schools, and cultural and religious opposition have significantly hindered the implementation of effective sexual education programs. These barriers not only impede progress toward achieving sexual and reproductive health sustainability but also contribute to adverse outcomes such as unintended pregnancies, sexually transmitted infections, and the perpetuation of gender inequalities. Addressing these challenges requires a collaborative effort between the health and education sectors, public institutions, and communities. Increasing investment in teacher training, resource allocation, and the development of robust national frameworks for sexual education are crucial steps toward improving student knowledge and outcomes. Furthermore, challenging cultural taboos and fostering open dialogues about sexuality are essential for creating a supportive environment where students can access the information they need to make informed decisions. Ultimately, ensuring that young people have access to comprehensive sexual and reproductive health education is a vital step toward achieving Sustainable Development Goals, particularly those related to health and gender equality. By empowering students with knowledge and resources, Sri Lanka can work toward reducing teenage pregnancies, sexually transmitted infections, and other health risks, promoting a healthier and more informed generation.

5. Acknowledgment

I would like to express my sincere appreciation to the A/L students who generously offered their time and participation in this study. Their willingness to engage and provide thoughtful responses was essential to the completion of this research. Without their valuable contributions, the data gathered would not have been as insightful and meaningful.

6. Keywords

Adolescent well-being, Comprehensive sexual education, Health equality, Sustainable development

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The Public Perceptions of Ex- prisoners' Psychological Well-being and Social Reintegration in Sri Lanka

V.K.N. Gamage

International College of Business And Technology (ICBT) associated with Cardiff Metropolitan University

kav11nishi@gmail.com

1. Introduction

Sri Lanka, a collectivist society deeply rooted in cultural and religious traditions, connects individuals based on ethnicity, religion, and socio-cultural backgrounds (Scroope, 2016). In such a social structure, public perceptions of ex-prisoners are not only shaped by individual beliefs but also by collective societal views (Vinney, 2019). The concept of universal human rights applies to all, including ex-prisoners who have served their sentences and are attempting to reintegrate into the society. However, societal attitudes, often influenced by cultural stigmas and religious beliefs offer challenges for these individuals by influencing their mental well-being and hindering their social reintegration. This qualitative study investigates how these public perceptions influence the psychological and social reintegration experiences of ex-prisoners in Sri Lanka, identifying social reintegration as a fundamental human right. The study was conducted due to the lack of existing literature on the comprehensive analysis of how public perceptions in Sri Lanka's unique cultural context directly impact the mental health, employment opportunities, and social reintegration of ex-prisoners. Additionally, there is limited exploration of reintegration challenges, the role of community, familial support systems and the broader societal factors that influence recidivism. The research examines the extent to which cultural stigmas, labels, and economic challenges impact the negative public opinions and how these affect the reintegration process. With regard to these external factors together with the public attitudes, this study highlights the challenges that ex-prisoners face, including isolation, mental health impacts, and employment difficulties, which increase the risk of recidivism (Ekanayake, 2020). Furthermore, the research explores the need for supportive interventions such as mental health services, education, and familial support to prevent these negative perceptions of the society influence the ex- prisoners and to promote positive societal change. This focus on the influence of public opinion provides a critical perspective on how community support can reduce stigma, enhance psychological well-being, and support ex-prisoners in leading productive lives by reingratiating into the society (Brydsten, Rostila, & Dunlavy, 2019). Additionally, the study demonstrates the vitality of the society in fostering a supportive environment that facilitates successful reintegration (Shinkfield & Graffam, 2009) which benefits both the ex- prisoners as well as the broader community.

2. Materials and Methods

The study focused on the public opinion regarding the psychological well- being and the social reintegration of ex-prisoners in Sri Lanka. The research employed volunteering sampling method to conveniently gather participants. Eight participants were recruited following the convenience with the sampling method and the feasibility of conducting in-depth qualitative analysis, while managing the time constraints. Eight participants were recruited with an inclusion criterion where, they should be Sri Lankan citizens of age 18 and above, who could comprehend and communicate in English. This inclusion criteria ensure that the participants represent the general adult Sri Lankan population and can consistently communicate in English. The exclusion criteria included individuals with a criminal history or those currently incarcerated, on parole, or unable to communicate in English. This exclusion criteria prevent bias by excluding those with criminal backgrounds, ensuring objective public perceptions for an effective exploration. They were recruited through a study advert circulated on social media which allowed the interested individuals to access a link or scan a QR code. After reading an information sheet in a Qualtrics survey, participants clicked "Next" to reach the consent form.

Consenting individuals chose "agree" and provided contact details for follow-up, while those who selected "disagree" were redirected to the main page, and their responses were disregarded. The researcher then contacted consenting participants to schedule interviews. The data was gathered through semi-structured interviews conducted in English, where the interview questions were approved by the ethics team. The interviews were conducted through Microsoft Teams and were audio-recorded following the verbal consent of each participant and transcribed verbatim. Thematic analysis was used to explore the data, involving six key stages. First, the data was familiarized thoroughly by reading the transcribed interviews. Then, initial codes were generated by labeling key ideas and emotions. Next, related codes were grouped into preliminary themes according to the patterns observed. After reviewing and finalizing the themes, they were defined and named to understand their primary meaning (Chawla, 2021). Finally, a report was produced, presenting the themes and supporting evidence from the data, offering a structured interpretation of the findings. This process presented a detailed understanding of the participants' responses.

3. Results and Discussion

The findings of this study reveal the diverse challenges faced by ex-prisoners in the Sri Lankan context, which affect both their psychological well-being and their social reintegration. These challenges are deeply combined with the cultural, religious, and socio-economic factors that contribute to the stigma surrounding ex- prisoners by significantly hindering their social reintegration process.

Cultural and Religious Stigma

In Sri Lanka, cultural beliefs play a significant role in shaping public perceptions of criminality and the reintegration of ex-prisoners. The strong cultural emphasis on family honor presents the belief that the criminal's behavior is not only a personal failure but also a stain on the individual's family. As the study presents, "Sri Lankan culture values family honor and views criminal behavior as a stain that impacts both the individual and their relatives." This sense of collective shame contributes to the social exclusion of ex-prisoners, as crime is viewed as an irreversible moral failure. Furthermore, certain religious teachings contribute to the stigma by emphasizing moral purity and righteousness, leading to the perception of ex-prisoners as "morally spoiled." As the study suggests, "Religious teachings that emphasize purity and moral decency can worsen the marginalization," with the society often viewing ex-prisoners as unworthy of reintegration.

Psychological and Social Implications of Stigma

The stigma associated with ex-prisoners has reflective psychological consequences. Social rejection often leads to feelings of guilt, hopelessness, and isolation, which significantly hinder their efforts in reintegrating to the society. The study highlights that "the weight of societal rejection has driven some ex-prisoners into despair, worsening their mental health and leading them to consider recidivism as an option of survival." This emotional impact, influenced by social alienation, creates a brutal cycle where ex-prisoners feel trapped by the negative labels forced upon them which leads to return back to their crime lifestyle as a coping mechanism. The lack of community support further worsens their sense of isolation, making it difficult for them to rebuild their lives effectively. Additionally, personal struggles such as emotional turmoil, guilty consciousness and social isolation, influence the pattern of recidivism. These factors also hinder the social reintegration process as ex-prisoners often feel trapped in a cycle of negativity and exclusion.

Economic and Community Barriers

Economic hardship represents another significant challenge for the ex- prisoners to reintegrate into the society. Ex-prisoners often struggle to find stable employment due to societal prejudice, which severely limits their opportunities. As the study reveals, "Without access to gainful employment, ex-prisoners are left with limited options, often resorting to crime to meet

basic needs." The economic challenges resulted by the stigma they face revert many ex-prisoners toward criminal networks as a mode of survival. The ongoing discrimination within the communities, including avoidance by family member further complicates their reintegration process. This rejection makes it difficult for ex-prisoners to find stable work and rebuild social connection leading them to feel marginalized and disconnected from ordinary society. Moreover, criminal conformity where ex-prisoners are driven back into criminal behavior due to association with other criminals in the community is intensified by the economic pressures they face. These economic and community influences complicate the social reintegration of ex-prisoners in Sri Lanka.

Public Perceptions of the Justice System

The study also highlights public doubt towards the criminal justice system in Sri Lanka. Many people perceive the system as biased and corrupt, which raises discouragements in the legal system. Accordingly, "The criminal justice system is seen as biased and vulnerable to corruption, leading many to feel that justice is selectively applied." This perception of injustice expands the isolation of ex-prisoners, reinforcing the stigma they face and further hindering their reintegration process.

Recommendations for Reintegration

The study emphasizes the importance of implementing comprehensive reintegration strategies to address these challenges and promote societal acceptance of ex-prisoners. Several key recommendations include, Educational Opportunities where, programs to enhance the skills of ex-prisoners should be developed in order to provide them with better opportunities for employment and social reintegration. Community and Familial Support, which strengthens their support systems within families and communities to facilitate acceptance and reduce social rejection. Offering therapeutic measures to address the psychological impact of stigma, helping ex-prisoners cope with the feelings of isolation and guilt. Additionally, encouraging actions that promote spiritual growth and self-acceptance to aide ex-prisoners to navigate the cultural and religious barriers they face.

Furthermore, the study presents a reintegration outline in accordance with the public perceptions that includes aftercare services and public awareness campaigns. Such efforts would contribute to create a more inclusive environment for ex-prisoners by reducing recidivism and promoting their social and psychological well-being. The findings highlight the need for a more inclusive society which provides ex-prisoners with the support they need to overcome the barriers created by stigma in order to reintegrate successfully into the community. Accordingly, these strategies along with policies aimed at enhancing public awareness and societal development can be considered essential for improving their reintegration process. The study results suggests that by reducing the stigma surrounding ex-prisoners and promoting their acceptance in society, Sri Lanka can help facilitate a successful reintegration process for the ex-prisoners by reducing recidivism and contributing to the overall development of society.

4. Conclusion

The study underlines the significant impact of the cultural and religious stigma, and the stereotypical attitudes that hinder the process of a successful social reintegration of ex-prisoners in Sri Lanka. Despite the varied perceptions of the public on the struggles experienced by ex-prisoners and the stigma on ex-prisoners, the findings demonstrate how these perceptions affect and shape the mental and emotional well-being of ex-prisoners. The strengths of this study include its exploration of these public perceptions, which provides a clear illustration of the factors that influence the social reintegration of ex-prisoners and the interventions needed in order to promote a successful reintegration process. The study highlights the necessity of legal reforms, community support, and interventions on mental health and social reintegration for a successful ex-prisoner reintegration process. With consideration of the issues and the interventions, and by addressing them, the society can become more inclusive and

understanding, supporting the reintegration and social contribution on ex-prisoners. The study captures the public perceptions and collectivist attitudes that shape ex-prisoners, institutional influences, personal struggles, and the importance of developing a more supportive society for them. This would promote mental health and well-being together with a successful social reintegration of ex-prisoners in Sri Lanka. The limitations of the study, such as the limited number of participants, and limited time, suggest the need for future research. A larger sample size and extended time for the study could benefit the exploration further by enabling a more thorough investigation of the experiences and challenges faced by ex-prisoners. Further, exploring the effectiveness of reintegration interventions, as well as the challenges faced, through the lens of ex-prisoners would offer deep insights regarding their psychological well-being and the social reintegration process. Overall, this study offers a comprehensive exploration of the public perceptions on ex-prisoners in Sri Lanka underlining the critical need for societal support ensuring the psychological well-being and a successful reintegration into the society with the implementations of new strategies and interventions to promote a more inclusive society.

5. Acknowledgment

I extend my heartfelt gratitude to all the parties that helped me in the successful completion of this project (reference number: UG-7647). Especially, my supervisor, who supported me since the beginning of this project, the volunteered participants, my family and my friends for their unwavering support and motivation.

6. Keywords

Ex-prisoner, Psychological Well-being, Public Perceptions, Social Re-integration

7. References

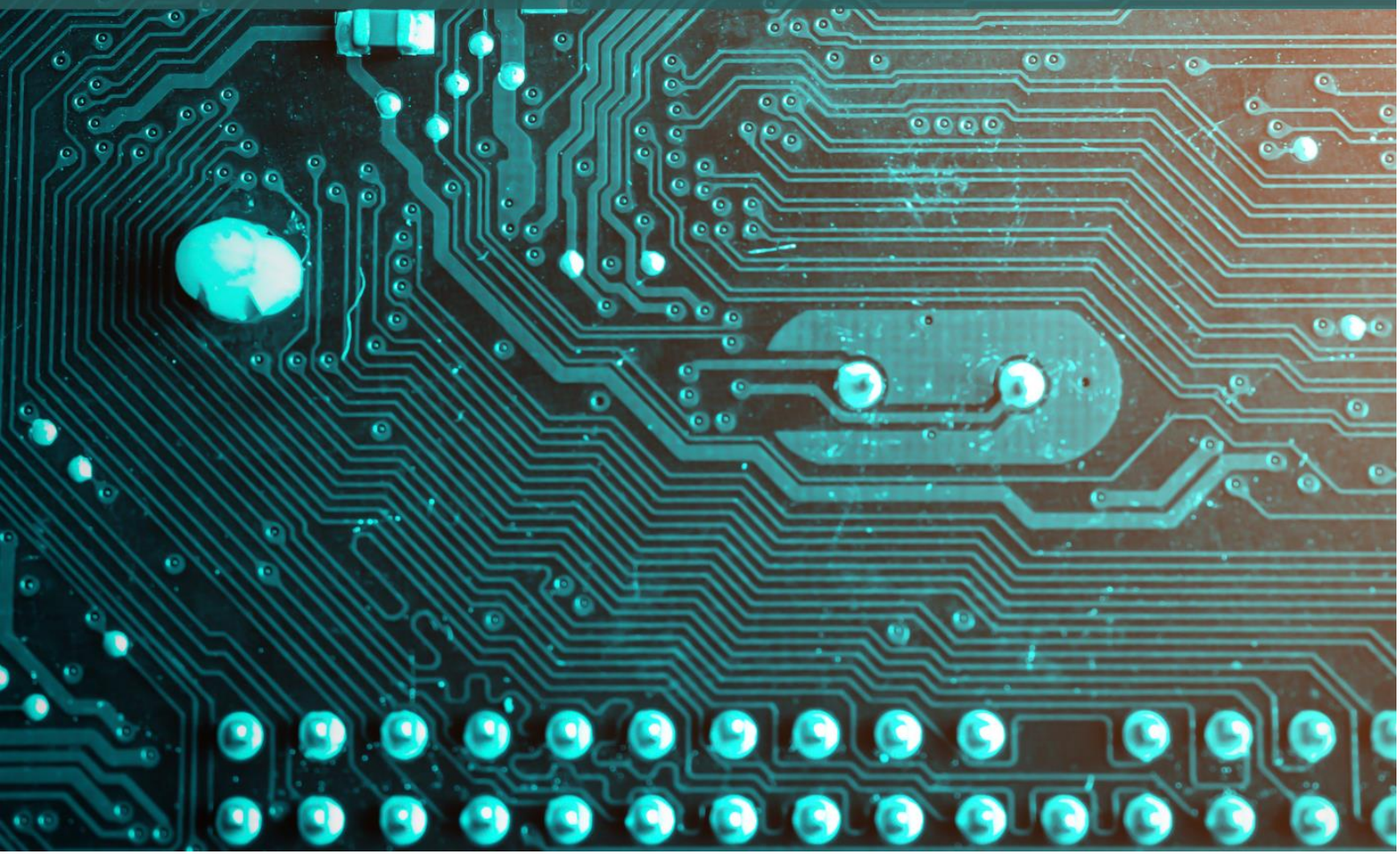
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IRSSSH 2024

International Research Symposium on Social Sciences and Humanities

Track 7
Technology, Innovation, and Education

Advancing Knowledge and Innovation for Sustainable Development



A Study of "Cyberbullying and Its impact on academic, social and emotional development of undergraduate students". (With special Reference to three selected public universities in Sri Lanka.)

I.W. Abesekara

Department of Philosophy and Psychology, University of Sri Jayewardenepura Sri Lanka.
isuabesekara@gmail.com

1. Introduction

In the rapidly evolving landscape of today's digital era, the internet has emerged as a vital and transformative force, bringing about a profound revolution in our daily lives. It has changed the way people communicate, work and access the information, creating positive and negative outcomes. Cyberbullying is one of the negative outcomes, acts as an extension of traditional bullying that occurs through electronic devices, including social media platforms, messaging apps, and emails. Unlike face-to-face bullying, cyberbullying often takes place in a more prevalent environment where anonymity, time, and space create additional challenges for victims. In university settings, where students rely heavily on digital platforms for their academic and social interactions there is a high potential for cyberbullying. This issue has become a major concern due to its profound effects on the academic, social, and emotional development of students.

This study explores the prevalence and impact of cyberbullying on undergraduate students in three selected public universities in Sri Lanka. Specially, it investigates the extent to which cyberbullying affects students' academic achievements, emotional wellbeing, and social interactions. This study aims to shed light on the pressing need for universities to address cyberbullying and provide recommendations to improve institutional policies and support systems for the betterment of student's population. The primary objective of the study was to propose effective strategies for universities and government policy makers to combat cyberbullying and support affected students in an efficient way.

2. Materials and Methods

This study used a cross sectional mixed-method approach, where both quantitative and qualitative data were collected to explore the impact of cyberbullying on the academic, emotional and social developments of undergraduate students. This research was focused on undergraduate students from three selected public universities located in Western Province of Sri Lanka, representing diverse academic disciplines and years of study. A sample of 100 students was selected using random sampling technique to ensure representation from different faculties and departments of Government Universities Sector. A structured, self-administered questionnaire was distributed to the participants including sections on demographics, the prevalence and types of cyberbullying, and questions related to academic performance, emotional well-being, and social interactions to. measure the degree of impact. Quantitative data were analyzed by using MS Excel software to explore relationships between cyberbullying, academic performance, and emotional outcomes and qualitative data were analyzed using thematic coding to identify recurring themes and patterns in the experiences shared by the participants.

3. Results and Discussion

Prevalence of Cyberbullying:

The study findings revealed cyber bullying is increasing day by day around the society. According to findings 47% of the participants reported being victims of cyberbullying at least once during their time at university. The most common forms of cyberbullying included offensive comments, spreading false information, and exclusion from online social groups.

Effective strategies should implement to decrease those negative results against the student's community.

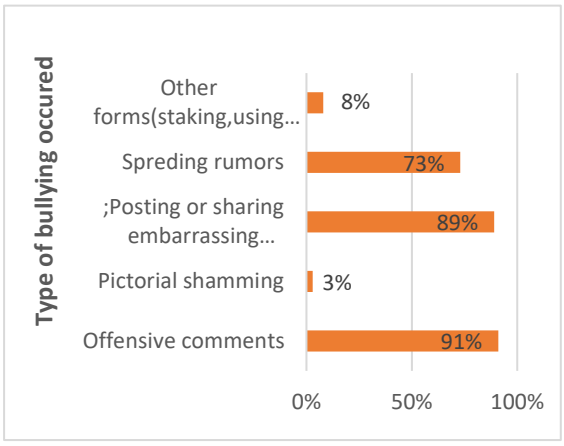


Figure 01: Distribution of the forms of Cyberbullying.

Academic Impact:

The study identified victims of cyberbullying reported significant declines in their academic performance. Approximately 45% of affected students stated that they had difficulty concentrating on their studies, leading to missed deadlines, decreased class attendance, and lower overall grades. Regression analysis showed a statistically significant negative correlation between cyberbullying and academic achievement

Emotional and Psychological Impact:

The study findings indicated that emotional toll of cyberbullying was profound. 92% of the victims reported feelings of stress, anxiety, and depression, with some indicating thoughts of self-harm. Cyberbullying was found to be a major contributor to deteriorating mental health, particularly among female students. Many victims also exhibited signs of low self-esteem and social withdrawal due to harassments they faced. Universities should provide accessible mental health services specially geared toward helping students deal with cyberbullying.

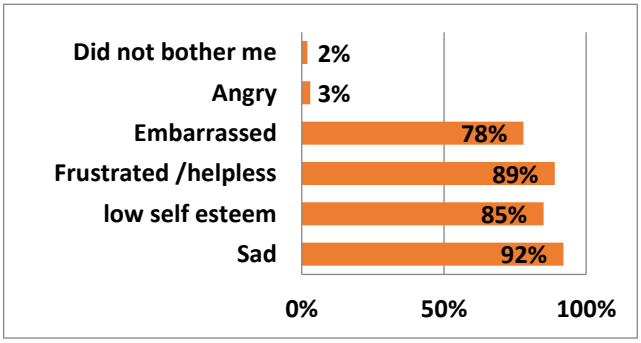


Figure 2: Distribution of how do they feel or felt about being cyberbullied

Social Relationships:

The study highlighted that cyberbullying is negatively impacted students' social lives. 89% of the victims indicated that they had distanced themselves from peer groups, leading to isolation. Fear of further bullying online caused many students to avoid social media platforms or limit interactions, which in turn affected their ability to form and maintain relationships. According to findings cyberbullying hinders students from being active in the society. This avoidance can lead to further isolation and mistrust, creating barriers to forming new relationships. Regular social activities and peer bonding programs can help students connect, building trust and resilience against isolation.

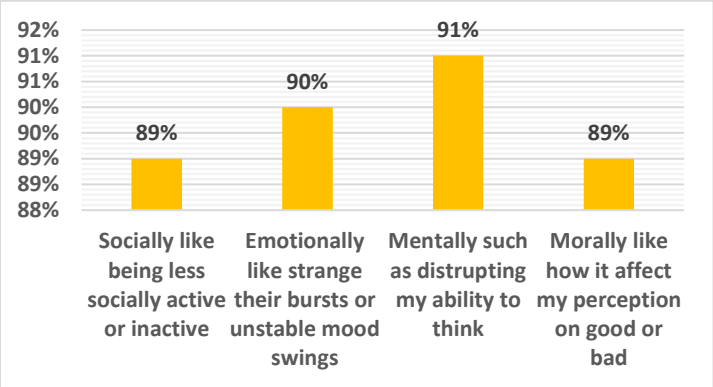


Figure 3: Distribution of How does cyberbullying affect them

The results of this study highlight the pervasive nature of cyberbullying and its severe impact on multiple aspects of students' lives. The negative correlation between cyberbullying and academic performance underscores the urgent need for academic institutions and government social and legal aids to address this issue. Emotional and psychological distress, coupled with social isolation, exacerbate the academic challenges faced by victims, often leading to a cycle of declining performance and further mental health struggles. Formal support structures, such as mentorship programs and counseling services provide victims with safe spaces to express their emotions and receive guidance on coping mechanisms. Awareness programs can positively impact student's social relationships

The findings are consistent with existing literature that links cyberbullying to poor mental health outcomes, including stress, depression, and anxiety. However, this study also highlights specific cultural and contextual factors unique to Sri Lanka, such as the role of familial expectations and social stigma, which may amplify the negative effects of cyberbullying on students. In collectivist societies students may rely on strong social support networks like family, friends or community groups, which can provide emotional and practical assistance when facing cyberbullying.

4. Conclusion

In conclusion this study shed light on the complex dynamics of cyberbullying among university students particularly in the Sri Lankan context. This study uncovered significant impacts of Academic, Emotional, Psychological and social influences of cyberbullying against university students. Nevertheless the study's findings underscore the importance of heightened awareness and proactive measures to address cyberbullying within university settings The study suggests for collaboration among students, government bodies and other stakeholders to implement policies and interventions to promote online safety and combat cyberbullying. Addressing the root causes of online harassment and creating a safer digital environment will not only enhance students' academic performance but also foster a healthier, more inclusive university culture.

5. Key words

Cyber bulling, Development, Government Universities, Undergraduates

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A Study on Inclusive Development of the Block Five in Mahaweli System H

W.K.D. Keerthirathne, M.W.N.U. Gunasinghe, D.M.T.U.K. Dissanayake, H.G.C. Sampath, D.J.K. Ihalagedara and S. Gunarathne

Faculty of Social Sciences & Humanities, Rajarata University of Sri Lanka. keerthirathna@ssh.rjt.ac.lk

1. Introduction

The main aim of this research was to study how inclusive development has taken place in block five in the Mahaweli system H. Specific objectives of this research were: i) to examine the basic information about the people in Block Five, Thambuttegma area in Mahaweli system H ii) to investigate the income level of the people in Block Five, Thambuttegma area in Mahaweli system H analytically iii) to find how educational development taken placed in Block Five, Thambuttegma area in Mahaweli system H, iv) to examine how has the development of the communication modes taken place in Block five in the Mahaweli system H, and v) to propose recommendations for policy formulation relevant to the sustainable development of the education, communication and the social development of the Mahaweli H system based on the research findings. As a huge physical and human resources development program executed in the country in 1977 and developed under the Mahaweli Authority Act No 23 of 1979, it covers 15 administrative districts in Sri Lanka comprising 47 divisions and 223 units in 10 Mahaweli systems. This project implemented with numerous objectives, has greatly enhanced the national economy of Sri Lanka (Mahaweli Authority of Sri Lanka, 2018).

2. Materials and Methods

Descriptive analysis is essential for gaining an initial understanding of collected data and summarizing its key characteristics. In this study, the descriptive analysis method comes under the quantitative approach was used to examine the demographic and economic characteristics of the survey participants, their education levels, and their perceptions of the development of educational and communication modes. In this research block 5, Thambuttegama which consists of five units: Thambuttegama town, 404, 405/A, 405/B, 406 & 408 of the Mahaweli H system has been selected as the research area. The total population who lives in this area is 51492. While the male population in this area is 24010 the female population is 26150. From this population, 300 hundred people were selected as the sample. Random sampling method has been used as the method of collecting samples. The structured questionnaire was the research tool used by the researchers to collect data. SPSS software has been used in analyzing data. The response rate is a crucial indicator of the effectiveness and representativeness of a survey. In this study, the response rate was calculated by dividing the number of completed questionnaires (268) by the total number of questionnaires distributed (300), resulting in a response rate of 89%. This response rate indicates that a substantial proportion of the targeted participants actively engaged in the survey and provided their perceptions on the development of educational and communication modes within the Mahaweli System H. A response rate of 89% is considered satisfactory and enhances the reliability of the findings obtained from the survey.

3. Results and Discussion

The sample composition used here was categorized by age group. Most respondents (56.36%) were in the 35-55 age group, followed by those in the 55-75 age group, and then the 18-35 age group. A minority (2.27%) was above 75, indicating that the majority of the respondents in the sample were middle-aged. According to the analysis, the majority of respondents (70%) were male, while 30% were female. Moreover, 98% of the respondents in the sample were married, while only 2% were unmarried. Furthermore, out of the 224 respondents, 211 (94%) were permanent in Block Five, Thambuttegama in the Mahaweli System H residents, indicating that most were long-term residents. Additionally, respondents' career and income level-related data revealed that most respondents were engaged in agriculture (49%), while 30.7%% were in

government and private sector jobs, and 12% were unemployed. Also, it was identified that 70% of the respondents have a monthly income below 50,000, while only 25% earn more than 50,000.

When examining the satisfaction levels of residents in the Mahaweli H area, the survey results revealed that the majority of respondents (97%) were satisfied with their living conditions. Only six respondents have expressed dissatisfaction. Further analysis of their reasons for dissatisfaction indicated that the primary issues were related to education, transportation, and community concerns.

According to the data collected on respondents' family educational backgrounds, it was observed that 141 respondents (63%) have children who are currently attending school, with the majority of these children in grades 1 to 5. Additionally, 64 respondents have at least one family member who has passed the Grade 5 scholarship examination, and 22 respondents have at least one family member who has qualified for university. Moreover, the study revealed that the majority of respondents' students are pursuing studies in the arts and technology streams, while the minority are pursuing studies in mathematics. On the other hand, 41 respondents have at least one family member who stopped their education after completing the Ordinary Level examinations. When investigating satisfaction with educational facilities among respondents, it was found that the majority of parents (52%) were dissatisfied with the educational facilities available to their children. In contrast, 48% of parents reported being satisfied with these facilities. By further investigating the 52% of parents who are dissatisfied with their children's educational facilities, the main reasons for their dissatisfaction were identified, with a lack of available facilities being the main reason. On the other hand, parents who are satisfied with their children's educational facilities revealed that some of the main reasons for their satisfaction were the nearby location, availability of teachers, transportation facilities, and provision of school stationery.

According to the survey responses, the majority of respondents had relied on mobile phones for communication, with 52% using phone calls and 24% using WhatsApp. On the other hand, email was the least used mode for communication, with only 3% of respondents utilizing this method. When it came to educational purposes for their children, the majority of respondents had used Zoom, which was the most popular tool for this purpose, used by 28% of respondents. Other commonly used educational tools include WhatsApp (26%) and YouTube (19%). Moreover, Email was the least utilized method for educational purposes, used by just 3% of respondents. These findings indicated a clear preference for mobile phone communication in general, while Zoom was favored for educational purposes.

When identifying the variations in living satisfaction by the gender of the respondents, it was found that there was no difference in their living satisfaction based on their gender. The majority of the respondents were satisfied with living in the Mahaweli H area. To further investigate whether there was a difference in their satisfaction based on their gender, a Chi-square test was conducted. According to the Chi-square statistic (2.268) with 1 degree of freedom has a p-value of 0.132. Since this p-value was greater than the common significance level of 0.05, there was not enough evidence to reject the null hypothesis and this suggested that there was no significant association between the respondents' gender and their satisfaction with living in the Mahaweli H area. Given the lack of variation among genders, further analysis focused on the variations in living satisfaction in the Mahaweli area by the respondents' income level.

According to the data, the majority of the respondents were low-income and their living satisfaction appeared to decrease as income levels increased beyond the lowest category, but the differences were not statistically significant based on the Chi-square test results. According to the Chi-square test results, the Chi-square statistic was 1.096, with 4 degrees of freedom,

and has a p-value of 0.89. Since this p-value was greater than the significance level of 0.05, there was not enough evidence to reject the null hypothesis and this suggested that there was no significant association between the respondents' income level and their satisfaction with living in the Mahaweli H area.

Therefore, it could be concluded that, regardless of gender and income level, the majority of respondents were satisfied with living in the Mahaweli H area. This finding suggested that factors contributing to their satisfaction might extend beyond the demographic variables examined. Also, this result highlighted the importance of conducting further research using diverse approaches to explore the reasons for this satisfaction and to identify additional variables that may influence the quality of life in the Mahaweli region.

When observing the variations in children's education satisfaction by the gender of the respondents, it was found that there was no difference in their education satisfaction based on their gender. The majority of respondents were satisfied with their education, with 86 indicating satisfaction. To further investigate whether there was a difference in their satisfaction based on gender, a Chi-square test was conducted and according to the results, the Chi-square statistic was 0.180, with 1 degree of freedom and a p-value of 0.672. Since this p-value was greater than the common significance level of 0.05, there was not enough evidence to reject the null hypothesis, suggesting that there was no significant association between the respondents' gender and their education satisfaction.

Furthermore, when analyzing education satisfaction by income level, it could be observed that the majority of respondents from various income categories reported satisfaction. However, the differences in satisfaction across income levels were not statistically significant based on the Chi-square test results presented in the following analysis. The Chi-square statistic was 4.441, with 4 degrees of freedom, and a p-value of 0.350. Since this p-value was greater than the significance level of 0.05, there was not enough evidence to reject the null hypothesis, indicating that there was no significant association between the respondents' income levels and their education satisfaction.

Regardless of gender and income level, the majority of respondents were satisfied with their education. This finding suggested that factors contributing to their satisfaction might extend beyond the demographic variables analyzed in this study. Additionally, this result highlighted the importance of conducting further research using diverse approaches to explore the reasons for this satisfaction and to identify additional variables that may affect the quality of education in Block Five, Thambuttegama in the Mahaweli H region.

When exploring the communication methods utilized by gender in the Mahaweli H area, there were significant differences among the communication methods used by respondents. The data indicated that mobile communication was the most utilized method, with 49 females and 94 males using it exclusively, highlighting a strong preference for this channel among both genders. Additionally, while both genders employ combinations of mobile and WhatsApp, males tend to use these methods more frequently, with 14 males compared to 7 females using mobile and WhatsApp together. Other multi-platform combinations, such as mobile, WhatsApp, Facebook, and SMS, also showed higher usage among males. Despite the observed variations, the overall patterns suggested that mobile communication remained the dominant choice among the respondents. These findings indicated that gender might influence communication preferences, suggesting the need for further investigation into the factors that could affect these choices and their implications for social interaction in the region.

4. Conclusion

Most of the respondents who participated in this research engaged in agriculture. But, some people were engaged in government and private sector jobs. The unemployment rate remains

here, was 12%. It was identified that 70% of the respondents have a monthly income below 50,000. The majority of respondents (97%) were satisfied with their living conditions. Moreover, the majority of the respondents were satisfied with living in Block Five, Thambuttegama in the Mahaweli system H. There was no significant association between the respondents' income level and their satisfaction with living. 52% of the respondents were dissatisfied with the educational facilities available. There was a clear preference for mobile phone communication in general, while Zoom was favored for educational purposes. There was a difference in their satisfaction based on their gender. According to the analysis, there was a need for a comprehensive program to address the unemployment rate and enhance the monthly income of the residents in Blok Five, Thambuttegama. It was essential to prioritize addressing key concerns about education, transportation, and community welfare. Furthermore, there was a pressing need to further develop educational facilities in the area to strengthen its sustainable development. Encouraging the residents to explore various modes of communication for educational purposes was also crucial for their overall development.

5. Keywords

block five, development, inclusive, Thambuttegama

6. Acknowledgment

We would like to extend our gratitude to the Research and Publication Committee, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka, Mihintale for extending the financial support to conduct this research relevant to the Mahaweli system.

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A study on the role of game-based learning in fostering innovation and creativity in primary schools in Sri Lanka (A Case Study of the Ibbagamuwa Education Zone)

S.S.M. Karunathilaka

Department of Sociology, University of Peradeniya shiranthamadushan2019@gmail.com

1. Introduction

Nowadays, game-based learning (GBL) has become a leading educational strategy that leverages the interactive and engaging nature of games to improve various learning outcomes. In school education, GBL is increasingly recognized for its ability to foster innovation and creativity among students. This approach aligns with contemporary educational needs that emphasize critical thinking, problem solving, and creative skills as essential for future success (Gee, 2003; Kapp, 2012). The modern need to integrate GBL into primary education stems from the evolving educational landscape that calls for innovative teaching methods to meet the needs of a rapidly changing world. Traditional teaching, often characterized by rote learning and passive instruction, is increasingly seen as inadequate for developing the skills required of 21st century students (Prensky, 2001). Thus, as the demand for creative and innovative thinkers grows, Education systems should adapt to include strategies that promote these skills from an early age (Zhang & Li, 2018). Although there is a growing recognition of the benefits of GBL globally, there is a significant knowledge gap regarding its application and effectiveness in the Sri Lankan educational context. While most existing research on GBL is concentrated in Western settings, there is a lack of understanding of how these strategies can be adapted and implemented in primary schools in Sri Lanka (Morris, 2019). This gap highlights a critical need for local studies that consider Sri Lanka's unique cultural and educational dynamics. Therefore, conducting research on the role of GBL in primary schools in Sri Lanka is important for several reasons. It will provide insight into how innovative learning strategies can be integrated into local curricula, transform traditional teaching methods and improve student outcomes. Furthermore, this research is also important in terms of contributing to the broader discourse on educational innovation by providing context-specific evidence of the effectiveness of GBL in fostering creativity and innovation among school students in Sri Lanka.

2. Materials and methods

This study employed a qualitative research design to explore the role of game-based learning (GBL) in fostering innovation and creativity in primary schools in Sri Lanka. This research has been done on the basis of Ibbagamuwa Education Zone which is an existing education zone in Sri Lanka as the field of study. Study sample A sample of 20 teachers teaching in primary grades belonging to Ibbagamuwa Education Zone was selected for this research through purposive sampling method. Semi-structured interview method and observation method were used for data collection. Thematic analysis was used to analyze the data obtained through semi-structured interviews and observation methods.

3. Results and Discussion

Engagement and motivation:

The study revealed that Game Based Learning (GBL) significantly increased student engagement and motivation in the Ibbagamuwa Education Zone. The majority of teachers studied reported that students were more enthusiastic and actively participated in lessons when GBL strategies were used. This finding aligns with previous research, which emphasizes that

GBL can improve student engagement by making learning more interactive and fun (Kapp, 2012). For example, research by Gee (2003) stated that the immersive nature of games captures students' attention and sustains their interest, leading to improved learning outcomes. Accordingly, the increased motivation observed in this study suggests that GBL can effectively transform traditional classroom dynamics and make elementary students' learning more engaging.

Develop creative thinking:

Another important finding, based on data from the majority of data contributing teachers, was that GBL fosters creative thinking among primary school students. The majority of teachers noted that game-based activities encourage students to think creatively and solve problems in new ways. This supports previous studies such as Prensky (2001) who promote creative problem solving by challenging students to explore different strategies and solutions. The results of the study suggest that GBL provides a conducive environment for developing creativity by allowing students to experiment with different approaches in a low-risk setting.

Improve problem solving skills:

The majority of research contributors emphasized that GBL improves students' problem-solving skills. Teachers felt that game-based activities lead students to develop critical thinking and problem-solving strategies, which are then transferred to other areas of their learning. This finding is consistent with Zhang and Li's (2018) meta-analysis. GBL has been shown to effectively improve cognitive skills by presenting students with complex situations that require thoughtful solutions. Accordingly, this study reveals that integrating GBL into the curriculum can contribute to better problem-solving skills among students.

Cooperative learning and social interaction:

The study found that GBL promotes collaborative learning and enhances social interaction among students. Most of the teachers studied mentioned that games are necessary to develop students' teamwork, communication and cooperation. This finding is consistent with the work of Vygotsky (1978) who emphasized the importance of social interaction in cognitive development. Therefore, the collaborative aspect of GBL not only improves social skills, but also contributes to a more integrated learning environment where students support each other to achieve common goals. This research revealed

Teacher training and implementation challenges:

A notable outcome of the study was the identification of challenges related to teacher training and implementation of GBL. The majority of data contributor teachers reported that while they recognized the benefits of GBL, they lacked adequate training and resources to effectively integrate these strategies into their teaching practices. This issue is highlighted in research by Morris (2019) who found that successful GBL implementation often requires significant professional development and support. Accordingly, this study underscores the need for targeted training programs and resource allocation to enable teachers to effectively use GBL strategies.

4. Conclusion

This study on the role of game-based learning (GBL) in fostering innovation and creativity in primary schools within the Ibbagamuwa Education Region has provided valuable insights into its impact on students' participation, creative thinking, problem-solving skills and social interaction. highlights some key benefits as well as some challenges that need to be addressed. According to this study, the study confirms that GBL significantly increases student engagement and motivation. The immersive and interactive nature of game-based activities

captures students' interest and encourages active participation. To capitalize on this finding, game-based activities should be integrated into the school curriculum to transform traditional classroom dynamics and create a more stimulating learning environment. Educational policy makers and curriculum developers should consider incorporating GBL as a standard practice to make learning more enjoyable and effective for elementary students. GBL fosters creative thinking by allowing students to experiment with different problem-solving strategies in a low-risk setting. This finding supports the need for educational approaches that encourage creativity. Schools should focus on designing game-based activities that challenge students to think innovatively and explore different solutions. Teacher training programs can include components that emphasize the development of creativity through GBL. Also, the study reveals that GBL improves students' problem-solving skills by presenting complex situations that require critical thinking. To build on this finding, educational institutions should incorporate problem-solving games into the curriculum and provide opportunities for students to engage in complex, game-based challenges. This approach will help students develop essential cognitive skills that can be transferred across different subjects and real-life situations. GBL promotes collaborative learning and enhances social interaction among students. The study underscores the importance of incorporating team-based games to foster teamwork and communication skills. Accordingly, schools should create more opportunities for students to work together on game-based projects that help build a supportive learning environment and improve social cohesion. One significant challenge identified according to this study is the lack of adequate training and resources for teachers to effectively implement GBL. To address this issue, it is critical to invest in professional development programs that equip teachers with the skills and knowledge to integrate GBL into their teaching practices. In addition, providing schools with the necessary resources and support facilitates the successful implementation of GBL strategies. Accordingly, this study suggests the following recommendations for successful implementation of GBL strategies.

- Professional Development: Here teachers can implement extensive training programs to familiarize them with GBL techniques and best practices. Through this, ongoing support and professional development can be ensured to ensure that teachers have the confidence and ability to use GBL effectively.
- Integration of Curriculum: Another possible course of action here is to develop and incorporate game-based learning modules into the primary school curriculum to align with educational objectives and promote student activity and creativity.
- Allocation of resources: This can allocate resources and funds to support the integration of GBL, including the acquisition of educational games and technologies that enhance the learning experience.
- Collaborative Learning Opportunities: It is possible to design and implement more collaborative, game-based activities that encourage teamwork and communication among students.
- Research and Evaluation: Further research can be conducted to evaluate the long- term effects of GBL on various aspects of student learning and development. Through this, this provides additional insights and can guide future educational practices and policies.
- Overall, this study highlights the potential of GBL to transform primary education. Although this study shows that GBL has a positive impact on students' participation, creativity, problem solving skills and collaborative learning in primary schools within the Ibbagamuwa Education Zone, GBL The study also highlights the need for improved teacher training and resources to fully realize the benefits. By addressing these challenges, educational stakeholders can improve the effectiveness of GBL and foster a more innovative and creative learning environment for students.

5. Keywords

Creativity Development, Game-Based Learning (GBL), Innovation in Education, Primary Education in Sri Lanka

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A Study on the Need to Integrate Historical Traditional Games into Modern Education Curricula to Promote Cultural Awareness(Based in Matara Education Zone)

K.N. Madhushanka

Department of Education, University of Peradeniya, Peradeniya. nimeshmadushanka2020@gmail.com

1. Introduction

Deeply connected to local traditions in Sri Lanka, historical traditional games reflect the cultural heritage and social practices of the communities (Fernando, 2019). Accordingly, these games, which include traditional activities passed down from generation to generation, provide a rich understanding of a culture's values, norms, and historical experiences. However, studies have also shown that traditional games play a crucial rolein cultural preservation by providing tangible links to historical traditions (Silva, 2021). Thus, the objective of this research is to investigate how integrating historical traditional games into the modern education curriculumcan enhance cultural awareness among students in Sri Lanka. Accordingly, for this research topic, data and information were obtained from the Matara Education Zone. Historical traditional games are an integral part of Sri Lankan heritage, demonstrating cultural values, social norms, and community ties. Accordingly, this research aims to investigate how the integration of traditional games into the curriculum can enhance cultural awareness among students. The research problem focuses on the cultural degradation experienced by the younger generations of Sri Lanka, who are heavily influenced by globalized and digital cultures, leading to the gradual erosion of traditional cultural practices. However, this study aims to address this literature gap by proposing the structural integration of traditional gamesinto the school educational curriculum, thereby instilling a deeper understanding and appreciation of Sri Lankan cultural heritage among students.

2. Methodology

The research adopted a qualitative methodology to explore the integration of historical traditional games into the modern education curriculum. The methodology involved semi-structured interviews and focus group discussions with 20 educators, curriculum developers, 10 cultural experts, and 20 students in the Matara Education Zone for data collection. Accordingly, purposive sampling will be used to select participants who have significant experience or interest in cultural education and traditional games. In addition, observation sessions were conducted in schools to observe current engagement with cultural activities. Accordingly, the collected data will be analyzed thematically, identifying key patterns and themes related to cultural awareness, pedagogical impact, and potential for curriculum integration. Thus, the thematic data analysis of this study on the integration of historical traditional games into the modern education curriculum revealed five main themes. The themes were identified as culturalpreservation, educational engagement, social integration, academic improvement, and implementation challenges. Accordingly, the participants emphasized that traditional games play a crucial role in preserving cultural heritage by ensuring that.

3. Results and discussion

Based on the Matara education region, important facts were uncovered about the need to include historical traditional games in the modern education curriculum. Accordingly, it became clear, firstly, that there is considerable interest among educators and students in including traditional games in the curriculum as a means of preserving cultural heritage. Participants also reported that traditional games improved social skills, teamwork and community participation among students. Research by Garca and Martnez (2021) supports

the idea that traditional sports improve social skills and teamwork. Accordingly, they noted that games that emphasize community participation help students develop empathy, emotional regulation, and social cohesion. Incorporating such elements into education can provide students with a more holistic learning experience that encompasses emotional intelligence as well as academic skills. Additionally, observations of educators and student activities revealed that students who engage in cultural activities demonstrate higher levels of cultural awareness and appreciation. Accordingly, integrating traditional folk games into the curriculum is considered a practical and effective way to make learning more engaging and enjoyable. Other studies have found that integrating cultural elements, such as traditional games, into lessons can help students gain a deeper understanding of their cultural heritage. For example, findings by Yildirm (2023) showed that students who engaged in culturally embedded games were more interested and motivated in subjects such as history and geography because these games connected abstract concepts with tangible, lived experiences. Thus, it was observed that integrating traditional games into the curriculum has a positive effect on students' academic performance. A study by Lee and Chen (2023) further emphasized the experiential learning benefits of traditional games; and provide an explanation. Using games as an educational tool increases students' engagement and willingness to participate in classroom activities. This is consistent with the current study's observation that traditional games make learning more interactive and enjoyable, which in turn has positive effects on students' academic performance. However, traditional folk games serve as effective tools for teaching health, physical education, and other subjects in the school curriculum. Mathematical principles, for example, can be taught through counting and strategy games, and historical events can be recreated through role-playing games. Accordingly, this finding underscores the need for incorporating traditional games into education to enhance academic learning by providing an essential, experiential approach. Although there are many benefits, the study also identified some challenges in integrating historical traditional games into the curriculum. Educators pointed to the lack of resources, including adequate materials and trained personnel, as a significant barrier. In addition, the rigid structure of the current curriculum leaves little room for the inclusion of non-traditional activities. Accordingly, teachers stated that successful implementation of these games requires extensive support, including professional development and curriculum flexibility. However, addressing these challenges is critical for effectively integrating traditional games into educational practices. Accordingly, integrating historical traditional games into the modern education curriculum has the potential to significantly enhance students' cultural awareness, engagement, social skills, and academic performance. The findings of this study highlight the multiple benefits of incorporating traditional sports into the school environment. By preserving cultural heritage and making learning more interactive and fun, these games can contribute to a more complete and engaging educational experience. However, the practical challenges identified in this research cannot be ignored. In order to successfully integrate historical traditional games into the curriculum, there must be a concerted effort to address both the lack of resources and curriculum rigidity. Accordingly, policymakers and educational leaders should recognize the value of these cultural assets and provide the necessary support to incorporate them into the educational framework. This includes investing in teacher training, developing flexible curricula and ensuring that schools have access to the materials and resources they need. Accordingly, the research concludes that policy support, resource allocation, and teacher training are needed to successfully integrate traditional games into the curriculum. Overall, this research contributes to the growing body of evidence supporting the inclusion of cultural elements in education and provides practical recommendations for educators and policymakers aiming to preserve cultural heritage and enhance the quality of education.

4. Conclusion

Research reveals that adding historical traditional games to the modern education curriculum can significantly enhance students' cultural awareness, participation, social skills, and academic performance. Accordingly, this study highlights the strong interest among educators and students in preserving cultural heritage through traditional games. It not only improves teamwork and community participation but also social skills. Thus, the observations showed that students who engaged in cultural activities exhibited a higher value for their heritage. Moreover, traditional games offer effective ways to teach a variety of subjects, including health, physicaleducation, and mathematical principles. However, research has also identified several challenges, such as insufficient resources, insufficiently trained personnel, and a rigid curriculum structure that limits the inclusion of nontraditional activities. Accordingly, educators emphasized that successful integration requires extensive support; including professional development and curricular flexibility. Policymakers and educational leaders must recognize the cultural value of these games and commit to providing the necessary support, such as investing in teacher training and developing flexible curricula. This research underscores the need to allocate resources toovercome practical challenges and successfully integrate sports into the traditional education framework. By doing so, schools can create a more interactive and enriching learning environment that preserves cultural heritage while enhancing educational quality. Overall, this study contributes valuable insights and practical recommendations for educators and policy makers, and ultimately concludes that integrating cultural elements into the curriculum fosters a deeper understanding and appreciation of Sri Lankan cultural heritage among students.

5. Keywords

Cultural Awareness, Cultural Heritage Preservation, Curriculum Integration, Traditional Games

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An Exploratory Study on How Educational Technology and Online Learning Teaching Process Affects University Students in Sri Lanka in their Studies

I.P.D. Illangasingha

Department of Education, Faculty of Arts, University of Peradeniya. *a19276@arts.pdn.ac.lk*

1. Introduction

Education is a critical concept globally, with many educators offering different definitions. Nelson Mandela famously stated, "Education is the most powerful weapon which you can use to change the world." Higher education, particularly university education, plays a crucial role in shaping a country's future. In Sri Lanka, university education is especially important, and empowering it with technology is essential, as future professionals emerge from these institutions. This research focuses on the role of educational technology and online learning in enhancing the teaching and learning processes for university students. It is vital to provide educational technology knowledge not only to university students but to all individuals in Sri Lanka's education system. While online education has posed challenges for many students, it is important to improve the quality of education continually. This study will explore how to connect university education with current technological advancements, minimize the challenges of online learning, and enhance the educational experience by addressing students' difficulties. The main goal is to transform online education into a positive experience, examining how educational technology impacts university students in Sri Lanka.

2. Materials and Methods

Interviews and questionnaires were used to obtain information for this research. The parts that might have been lost through the questionnaire were covered using the interview method, and both methods were followed. A group of ten students studying university education from different parts of the country who have experienced online education was selected and given a questionnaire covering all nine faculties of the university. Their answers and views on this educational technology and online education were elicited.

In addition to this, many students from different areas of the four-year groups, covering all nine faculties at the University of Peradeniya, who have faced online education, were interviewed to investigate their views. A mixed method, combining both quantitative and qualitative approaches, was employed by collecting data through interviews and questionnaires. Information was obtained from 10 students through questionnaires and 25 students through consensus discussions. Additionally, interviews were conducted with many university students studying online at various universities in Sri Lanka, and their opinions were gathered in this regard. One advantage of this study was that many participants had received online education some time ago and are currently studying physically. Information was obtained easily through several methods, such as questionnaires. In addition to this, interviews were also conducted with many university students who were studying online in various universities in Sri Lanka and their opinions were obtained in this regard. Through this, one of the conveniences to discover the true situation of students studying in Sri Lankan universities was that many students who participated in this study had received online education some time ago and are currently studying physically. Information was obtained easily through several methods such as questionnaires.

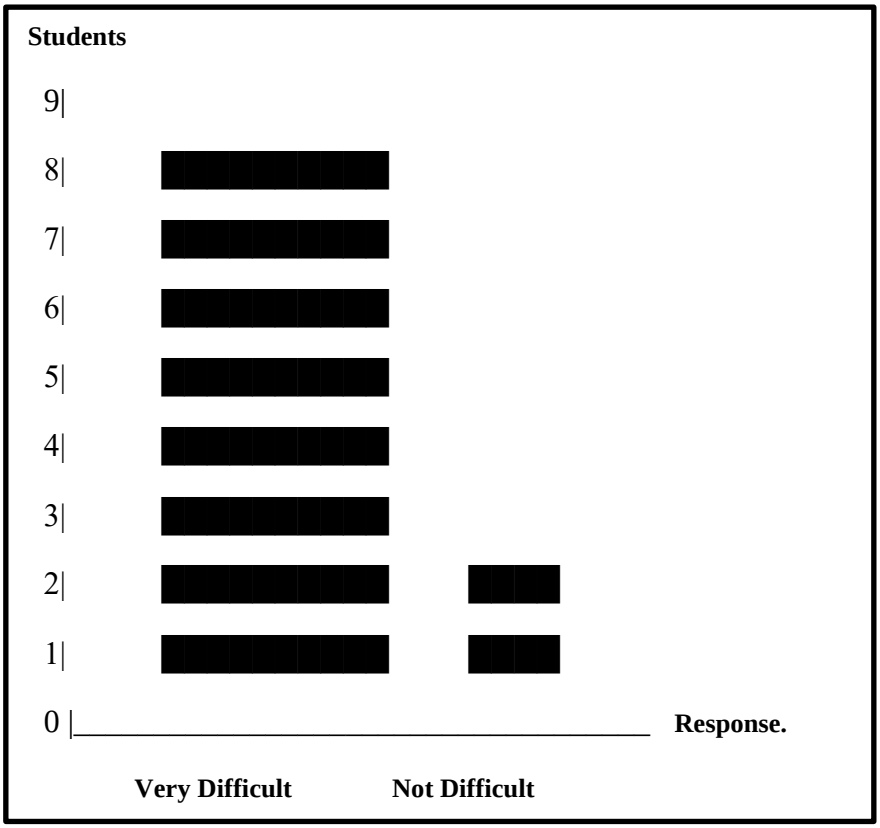
3. Results and Discussion

Information was obtained according to the methods mentioned above, and the information obtained was able to provide a good explanation about the need for educational technology and

the way online education affects university students. In other words, the students who participated in the research and in both the methods of interviews and questionnaires were educational. They said that technical knowledge is a must for every student. But many people's response to online education was very negative.

- They said that although this education system is a good one, such situations have arisen due to the difficulties in getting education through it.
- Under it, the problems of lack of signal especially when participating in online classes, having to sit in the same place for several hours and learn through online technology.
- Lack of money required for the packages spent on joining,
- Less space for student-cantered education,
- Discussions with lecturers about unclear areas,
- Some difficulties arise in the possibility of clear learning for all,
- Technical difficulties in attending lectures due to different weather conditions.,
- It was clearly pointed out that they face difficulties such as the lack of knowledge that can be understood by doing it orally through this technique, errors in practical research, etc.

Also, 2 out of 10 people who answered the questionnaire said that this online technical learning was good and without any problems for them. The following table shows the results obtained from the 10 students who participated in the questionnaire.



According to the opinions expressed by these university students, although this online education technology is a good one, the adverse effects of its implementation should be avoided. Especially as mentioned above, due to the problematic situations they face, attitudes have been created to look at this technical teaching in a negative way. Therefore, *first of all, every student should be given a comprehensive understanding of technical knowledge. Also, the problems of children who are unable to participate in online education should be investigated and the solutions that can be given to them should be done first.*

Also, in activities such as practical tests, they should be made to watch some video clips and do the same lesson several times until they get a comprehensive understanding. Furthermore, teaching methods should be done by giving breaks instead of continuous teaching methods in order to avoid boredom. Matters such as re-doing for students who are unable to participate in weather conditions, and giving methods to children with economic difficulties to get rid of those difficulties should be done. It can be said that the online process can be done very effectively, and through that the maximum results of university education can be reaped. Two of the ten people who answered the questionnaire said that this online education system is good because they don't have any of the problems mentioned above and are able to connect with this technical education without any problem.

4. Conclusion

Online education and educational technology play a very important role in situations where it is not possible to conduct lectures in person. In this regard, university students should be given a comprehensive understanding of these technologies before emergency situations arise. By addressing the problematic situations identified above, it is possible to apply the positive outcomes of online technology to university education. In particular, students facing economic difficulties can receive the necessary packages to connect through online education and obtain communication tools from the government and educational institutions. The Ministry should provide the necessary assistance. Educators should make arrangements to facilitate more student-centered education.

In this context, especially during practical tests, students should be able to view materials through information communication tools such as videos. Lectures should be recorded so that, even in distance learning, students can experience learning as if they are present with the educator. Necessary activities should be undertaken to provide a transformed educational model. Additionally, during lectures, students should have the opportunity to ask questions and understand all aspects of the lesson. In cases of misunderstanding, educators should be prepared to teach the same lesson two or three times, working to engage students in the learning process. In conducting examinations and evaluations, challenges such as submitting answer sheets through online technology present various difficulties. The effectiveness of this process can be enhanced by allowing extra time for submissions, enabling university students to utilize this effectively in their educational process. Thus, it appears that they are facing challenges such as economic constraints, signal issues, distant teacher-student relationships, environmental factors, and a lack of knowledge about technology. By addressing these factors, students can gain extensive knowledge about educational technology and maximize the benefits of online learning, leading to a successful educational experience. Looking at the research results, although students did not completely reject this technology, there were weaknesses in their knowledge related to it, and economic issues were also observed.

5. Acknowledgment

Special thanks are due to all the students who supported the University of Peradeniya and other universities in Sri Lanka in obtaining information for this research.

6. Keywords

Academic Activities, Difficulty, Disclosure, Educational Technology, Online Learning, Teaching Process.

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Crucial Effect of Second Language (English): Feasibility Study of Career Development of Graduate Students Outside of Urban

Ven. B. SunandaBodhi

Faculty of Graduate Studies, Buddhist and Pali University of Sri Lanka, Sri Lanka. sunandaboodhi@gmail.com

1. Introduction

The ubiquity of the English language in the modern globalized world has been well-documented (Crystal, 2012) (Graddol, 2006). As a lingua franca, English has become the predominant medium of communication in various spheres, including business, academia, and international relations (Jenkins, 2005) .This linguistic hegemony has significant implications for career prospects and earning potential, as proficiency in English is often a prerequisite for accessing lucrative opportunities (Grin, 2001) .However, the distribution of English language competency is not uniform across geographic regions and socioeconomic strata. Numerous studies have highlighted the disparities in access to English language education, with urban centers and elite institutions enjoying a disproportionate advantage (Phillipson). Graduate students residing in non-urban areas, particularly in developing countries, often face substantial barriers in acquiring the necessary English language skills to compete in the global job market (Canagarajah, 2005) .This study aims to investigate the profound effects of the English language on the career development of graduate students in non-urban areas. By exploring the challenges faced by these students in navigating the linguistic demands of the modern workforce, this research seeks to shed light on the complex interplay between language, socioeconomic status, and career trajectories (Pennycook, 1994) .The findings of this study may inform policymakers and educational institutions in their efforts to address the disparities in English language education and promote more inclusive career pathways for graduate students from diverse geographic and socioeconomic backgrounds.

2. Methodology.

This study adopts a qualitative research approach to investigate the effects of the English language on the career development of graduate students residing in non-urban areas. The research methodology consists of two primary components: thematic analysis of diverse data sources and in-depth interviews with graduate students and school students from non-urban regions. The thematic analysis component involves the systematic examination of a range of written, electronic, and digital materials, including academic publications, policy documents, and online discussions, to identify and categorize the key themes, challenges, and perspectives related to the topic (Braun & Clarke, 2006) This comprehensive review of the existing literature and discourse will provide a solid foundation for understanding the broader context and the lived experiences of the target population. Additionally, the researchers conduct 20 in-depth, semi-structured interviews with graduate students from rural areas and school students studying in non-urban regions. The students were selected the graduate student of the university of combo. These interviews aim to elicit detailed accounts of the participants' experiences, perceptions, and aspirations regarding the role of the English language in their educational and career trajectories (Kvale & Brinkmann, 2009).The qualitative data gathered from these interviews will be analyzed using thematic coding to uncover the emergent themes and patterns.

3. Result and Findings

The research study conducted with 20 graduate students from the University of Colombo's Faculty of Management, who had graduated in 2018, has provided valuable insights into the role of the English language in their educational and career journeys. According to the sample, 16 of the graduate students did not have a strong educational background, while the remaining 4 had a relatively better foundation. However, a majority of the participants, 12 out of the 20, expressed that they were unable to fully utilize their degree-level proficiency due to a lack of adequate English language skills. The participants attributed this challenge to the insufficient exposure to English language education during their schooling years, with many stating that they did not have access to competent English language teachers. The interviews revealed that the English language played a significant role in the daily activities and future career prospects of 17 out of the 20 participants. They acknowledged that without proficiency in English, they would be unable to thrive in their professional pursuits. Conversely, the remaining 3 participants did not perceive the English language as a crucial factor for their survival and career development. Regarding the challenges faced in acquiring English language proficiency, all the participants expressed that they did not receive a solid foundation in the language during their schooling years. Many of them, 17 out of 20, tried to improve their English skills after completing their Advanced Level examinations, but 7 of them found it challenging to achieve the desired level of proficiency. The participants overwhelmingly recognized the importance of English language skills in the current job market and career opportunities. They shared that the majority of job interviews and workplace interactions are conducted in English, and the lack of English proficiency has hindered their performance in such settings. Most of the participants expressed their inability to communicate fluently in English, even though they could comprehend the language when spoken to them. Furthermore, the graduate students from non-urban areas observed distinct differences in the access to English language education between urban and non-urban regions. They believed that students from urban areas had a significant advantage in terms of exposure to English language instruction and resources, which ultimately enabled them to secure better-paying positions in the job market compared to their non-urban counterparts. In summary, the findings from the interviews with the 20 graduate students from the University of Colombo's Faculty of Management highlight the critical role of the English language in their educational and career trajectories. The participants' experiences underscore the disparities in access to quality English language education between urban and non-urban areas, which have a substantial impact on the career development and employment opportunities of graduate students from non-urban backgrounds.

4. Conclusion and Recommendation

According to the study, the English language is very significant in this contemporary period. Without knowledge of English, individuals cannot reach the top levels of employment, even if they possess a degree. Additionally, non-urban students often struggle to speak English proficiently, which negatively impacts their future and job prospects. Based on the findings from the interviews with the 20 graduate students from the University of Colombo's Faculty of Management, several strategies could be implemented to improve English language education in non-urban areas:

- Enhance Teacher Training and Development:

- Provide comprehensive training programs for English language teachers in non-urban schools to improve their proficiency and pedagogical skills.
- Offer continuous professional development opportunities to ensure teachers stay updated with effective teaching methodologies and resources.
- Incentivize and encourage high-performing English language teachers to serve in non-urban schools.

- Expand Access to English Language Resources:
  - Establish well-equipped English language labs and libraries in non-urban schools, with access to a wide range of learning materials, audio-visual resources, and digital tools.
  - Collaborate with local communities and organizations to set up English language learning centers in non-urban areas, offering affordable and accessible language courses.
  - Leverage technology and digital platforms to provide online English language learning resources and virtual tutoring services for students in non-urban regions.

- Implement Targeted Curriculum and Pedagogy:
  - Develop a tailored English language curriculum that addresses the specific needs and learning styles of students in non-urban areas.
  - Incorporate interactive, communicative, and student-centered teaching approaches to enhance language acquisition.
  - Integrate English language learning into the overall academic curriculum, ensuring its relevance and application across different subjects.

- Strengthen School-Community Partnerships:
  - Engage with local businesses, industries, and community leaders to understand the English language proficiency requirements for the job market in non-urban areas.
  - Collaborate with these stakeholders to design and implement English language programs that align with the skill demands of the local economy.

5. Keywords

English language, career development, graduate students, rural schools, education system

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Examining the Current Status of Using Multimodal Methods for Teaching by ICT Teachers

E.M.N.D. Ekanayake

C.W.W. Kannangara Central College, Matugama, Sri Lanka. danuekanayakearm@gmail.com

1. Introduction

Rapid advancement in technology has led to significant transformations in the educational landscape, especially in the approaches in which used in the teaching learning process. It has facilitated active pedagogy with the focus of student-centered methods. Therefore, the use of multimodal (multimedia) teaching methods has become an emerging trend which could impact the design of digital learning. The integration of multimedia into various learning modes seems to encourage students to adopt a more flexible approach on inquiry and knowledge gaining.

Multimodality includes the use of numerous methods of representation, text, visual images, and design (Philippe et al., 2020). For instance, a multimodality might incorporate elements such as PowerPoint presentations, videos, audio, interactive quizzes and polls, simulations, interactive boards and smart boards, images, digital text books and materials. Multimodality influence multimedia and ICT to develop dynamic resources that address different sensory modes and learning styles of learners (Sankey & Birch, 2005).

According to Hazari et al., (2006) student learning becomes more meaningful when a diversity of interactive tools and resources are utilized, rather than relying solely on text. The change from paper-based education to multimodal education needs reimagining the design, approach, and practice of teaching and learning process (Gilakjani et al., 2011). This approach lets main concepts to be presented through various modes, such as both visual and auditory formats. This approach helps learners find the content easier to understand, enhances their attention, and boosts overall learning performance (Sankey, 2006).

Despite these benefits, there are various challenges in the use of multimedia teaching methods by information technology teachers in recent years. Studies suggest that this decline may be due to several factors, such as unclear objectives in the use of multimedia and insufficient training for teachers (Wellington, 2000). As stated by Kennewell and Beauchamp (2007) teachers may face challenges such as limited access to resources, technology, technical challenges, and insufficient training and support. Additionally, there may be student related and school related factors highlighting the need for a balanced approach to integration. To tackle these issues and challenges, it is important to assess the prevailing condition of multimodal resources usage in teaching learning process. This research mainly focuses on exploring current situation of using multimodal approaches in teaching learning process by Information Communication Technology (ICT) teachers

Objectives of the study

1. To investigate the types of multimedia used by in teaching learning process
2. To investigate the level of awaerness of ICT teachers on using multimeida

Hypothesis of the study

1. H_0: There is no significant difference in the level of awareness about multimodal teaching among ICT teachers across school types 1AB, 1C, and Type 2
2. H_1: There is a significant difference in the level of awareness about multimodal teaching among ICT teachers across school types 1AB, 1C, and Type 2

2. Materials and Methods

The research incorporated with quantitative approach. The population of this study was choose under convenient sampling technique and the population was all the ICT teachers, who teach ICT from grade 6 to 13 classes in Matugama zone. The data were collected using two separate questionnaires; open ended questionnaire and closed ended questionnaire mainly with short answer questions, multiple choice and Likert scale question. Open ended questionnaire was given to 6 ICT teachers' representing three types of schools (1AB, 1C and Type 2). The closed ended questionnaire was distributed among the teachers via whatsapp groups and a Google form was used as the data collection tool. The data collected from open ended questionnaire was used to formulate closed ended questionnaire. The data was analyzed using excel and SPSS software.

3. Results and Discussion

According to the responses, 49 ICT teachers responded to the Google Form questionnaire. Out of the 49, 36 were female and 13 were male. The ages of the respondents ranged from 28 to 56 years. There were 59% from the Matugama education zone, while 17%, 16%, and 8% were from the Walallavita, Agalawatta and Palindanuwara divisions, respectively. The majority of the teachers, 60%, were appointed under the NCOE type. In comparison, 38% held degrees, and 2% were trained teachers. The Percentage of teachers, who obtained a postgraduate degree as their highest educational qualification was 8% while 47% held a degree qualification and 45% held an NCOE qualification. Teachers represented 55% from 1AB schools, 16% from 1C schools, and 29% from Type 2 schools.

In evaluating the frequency of using multimodal methods in teaching, responses are categorized into specific levels. "Never" (1) indicates that these methods are not used at all. "Rarely" (2) corresponds to usage occurring 1-2 times a month. "Sometimes" (3) reflects occasional use, while "Often" (4) represents regular application, typically two or three times a week. The highest level, "Always" (5), signifies frequent use, occurring four times a week or more. This classification provides a structured view of how often educators incorporate multimodal methods into their teaching practices.

Table 1: Frequency of Using Multimedia for Teaching Learning Process

Method of teaching	*N*	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Using videos	49	1.0	5.0	2.898	1.0457
Using interactive whiteboards	49	1.0	5.0	2.245	1.5074
Using PowerPoint presentations	49	1.0	5.0	2.898	1.0256
Using educational games	49	1.0	5.0	2.061	.8517
Using interactive quizzes/polls	49	1.0	5.0	1.857	.8416
Using interactive E-books	49	1.0	5.0	2.612	1.4407
Using Visual representations	49	1.0	5.0	2.653	1.0518
Valid N (list wise)	49				

Using Videos and PowerPoint presentations have the highest mean scores which indicate relatively higher usage. Interactive quizzes/polls and educational games have the lowest mean scores, indicating usage.

Teachers' level of awareness was measured using questions with Likert scale answers ranging from 1 to 5: 1 for very poor, 2 for poor, 3 for moderate, 4 for good, and 5 for very good. The

mean value of 3.67 indicates a moderately high level of awareness among the teachers and the standard deviation shows a moderate spread of data with the value of 0.7469.

Table 2: Analysis of Variance: Awareness Levels of Multimodal Teaching Among Different School Types (1AB, 1C, Type 2)

	Sum of Squares	*df*	*Mean Square*	*F*	*Sig.*
Between Groups	1.051	2	.525	.939	.398
Within Groups	25.725	46	.559		
Total	26.776	48			

The ANOVA results suggest that there is no significant difference in the level of awareness among the different school types (1AB, 1C, Type 2), as the p-value of 0.398 is greater than the alpha value 0.05.

5. Conclusion

Considering the frequency of using each type of multimedia, none of the methods has reached a moderate level, which highlights an urgent need for motivational programs to use multimodal methods in teaching learning process. Since with over 50% of teachers using PowerPoint, video, and visual representations more than once a week, depicts a positive trend of using some multimodal methods. However, there is a urgent need of promoting the methods such as interactive quizzes and polls and educational games. To promote using these methods, the authorities need to provide essential resources such as physical resources, internet connection, technical support. Based on the results, teachers' awareness levels about multimodal teaching range from moderate to good. This reveals the necessity of intervention progrmmes to improve the awareness of multimodal teaching among ICT teachers. These intervention programmes should focus on conducting seminars, workshops, and hands-on practice sessions. However, there is no significant difference in awareness levels among teachers from the three types of schools (1AB, 1C, Type 2), suggesting that the teachers of three types of schools may have got equal opportunities for knowledge gaining. Furthermore, it will be a positive step to promote school based professional teacher development programmes focusing on multimodal teaching.

6. Keywords

ICT teachers, Level of awareness, Multimodal teaching

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Impact of Mindfulness on Stress Levels and Well-being of Teacher Trainers

Ven. B. Nandabodhi

Buddhist and Pali University. nandaboodhi@gmail.com

1. Introduction

Mindfulness, or "Sati" in Pali, rooted in ancient Buddhist practices, focuses on present-moment awareness and non-judgmental acceptance. It has become prominent in Western psychology for stress reduction and well-being enhancement (Kabat-Zinn, 1990). Teacher trainers face significant stress from workloads and emotional demands, impacting their effectiveness (Karunaratne, 2020). In Sri Lanka, similar challenges are present, necessitating effective coping mechanisms. This study examines how integrating mindfulness into teacher training can enhance mental resilience and well-being, supporting sustainable educational outcomes for teacher trainers. While much research focused on teachers, the specific experiences of teacher trainers are underexplored. By integrating Buddhist teachings; the Mahasatipatthana Sutta and Ānāpānasati Sutta with empirical studies from Western psychological frameworks, this research aimed to provide a comprehensive understanding of how mindfulness can serve as a valuable tool for emotional and mental health among teacher trainers.

2. Materials and Methods

This study used content analysis to explore mindfulness practices and their impact on stress reduction and well-being. It reviewed textual sources, including academic journals, research studies, and Buddhist scriptures like the Mahasatipatthana Sutta, Ānāpānasati Sutta, and Dhammapada. Both Western psychological perspectives and traditional Buddhist teachings were analyzed. Through systematic coding and theme identification, the study provided a comprehensive view of mindfulness's role in enhancing mental health and emotional resilience, specifically for teacher trainers. The analysis ensured consistency and integrated insights from both modern psychology and Buddhist philosophy.

3. Results and Discussion

- Stress Levels among Teacher Trainers

Teacher trainers in Sri Lanka experience substantial stress due to the nature of their roles. Their responsibilities include training the next generation of teachers, a task fraught with challenges. According to Karunaratne (2020), teacher trainers face increased pressure to manage curricula, monitor teacher candidates, and ensure compliance with educational policies, often leading to stress and burnout. Specific stressors include:

Heavy Workload: Research by Perera & Wijewardena (2019) highlights that teacher trainers often deal with excessive administrative work alongside their teaching responsibilities, which exacerbates work-related stress. As a result, many find themselves stretched too thin to manage both personal and professional duties effectively.

Administrative Responsibilities: Teacher trainers frequently juggle various tasks, such as attending administrative meetings, developing course materials, and reporting to authorities. This multitasking can overwhelm even the most resilient individuals, as noted by Fernando et al. (2018) in their study on educator burnout in South Asia.

Managing Student Teachers: Teacher trainers also face the added responsibility of managing a wide range of student abilities and professional competencies. The constant need for observation, feedback, and evaluation can create additional emotional labor, leading to exhaustion. In a study by Rodrigo & de Silva (2020), managing student expectations and maintaining high standards were identified as major stressors.

These pressures, without adequate coping mechanisms, lead to chronic stress, affecting the overall well-being of teacher trainers in both personal and professional capacities.

- **Mindfulness as a Stress-Reduction Tool**

Mindfulness practices, deeply rooted in Buddhist traditions, have been identified as effective strategies for managing stress. The Mahasatipatthana Sutta (PTS DN 2.290–2.315) emphasizes mindfulness as a method to cultivate awareness, reduce suffering, and maintain emotional balance. Teacher trainers can utilize mindfulness meditation, breathing techniques, and mindful awareness to mitigate the impact of stress in their daily lives.

Mindfulness Meditation: Mindfulness meditation encourages individuals to develop an awareness of their thoughts and emotions. The Jātaka Tales often portray the Buddha emphasizing calmness and mindfulness in the face of challenges, which parallels the modern need for stress management. According to Kabat-Zinn (1990), mindfulness meditation helps in creating mental space, allowing individuals to step back from their stressors and reflect rather than react impulsively.

Breathing Techniques: Research shows that mindful breathing, as described in the Ānāpānasati Sutta (PTS MN 3.79–3.88), can regulate emotional responses by calming the autonomic nervous system. Studies like Brown & Ryan (2003) have demonstrated that mindful breathing can significantly reduce cortisol levels, a key indicator of stress, while promoting a sense of relaxation and grounding.

Awareness and Acceptance: One of the foundational elements of mindfulness is the non-judgmental awareness of the present moment. The Dhammapada (PTS Dhp 282) advises, "*By oneself is evil done, by oneself is one defiled; by oneself is evil left undone, by oneself is one purified*." This suggests that mindfulness is an internal process of awareness and self-regulation. Shapiro, Carlson, Astin, & Freedman (2006) found that mindfulness helps individuals accept stress without letting it overwhelm them, leading to improved emotional well-being.

- **Empirical Evidence**

The effectiveness of mindfulness for stress reduction among educators has been well-documented in empirical research. Mindfulness-Based Stress Reduction (MBSR), developed by Jon Kabat-Zinn (1990), has been applied successfully to a wide range of professionals, including teachers and trainers. Studies have consistently shown that MBSR reduces stress and enhances well-being.

Mindfulness-Based Stress Reduction (MBSR): In a study conducted by Roeser et al. (2013), teachers who participated in MBSR programs reported reduced levels of stress, anxiety, and depression. Teacher trainers, facing similar stressors, could benefit from mindfulness-based interventions to manage their stress and improve mental health. The structured practices in MBSR, such as body scanning and mindful movement, allow individuals to better cope with stress.

Research on Educators: According to Flook et al. (2013), teachers who participated in an eight-week mindfulness intervention showed significant improvements in emotional regulation, lower stress levels, and increased compassion for themselves and others. This study provides a strong basis for applying mindfulness interventions among teacher trainers, who can similarly benefit from reduced stress and improved well-being.

Cultural Context in Sri Lanka: The practice of mindfulness is not foreign to Sri Lankan culture, given its deep roots in Buddhist traditions. The Satipatthana Sutta (Majjhima Nikāya, 10) outlines the core aspects of mindfulness, including the four foundations of mindfulness (body, feelings, mind, and mental objects), which remain relevant to modern mindfulness practices. Jayatilleke (2015) highlights how these teachings continue to resonate in Sri Lankan education and professional development programs.

- **Well-being**

Well-being encompasses physical, mental, and emotional health. In the context of teacher trainers, mindfulness contributes to a holistic sense of well-being by enhancing emotional resilience, job satisfaction, and physical health.

Mental Well-being: Mindfulness helps teacher trainers develop emotional resilience by encouraging them to observe and accept their emotions without judgment. This non-reactivity enables them to navigate the challenges of their professional roles more effectively. As Seligman (2011) suggests, mindfulness enhances positive emotions and engagement, critical elements for overall mental health.

Physical Well-being: Mindfulness positively impacts physical health. Studies by Davidson et al. (2003) demonstrated improved immune responses, lower blood pressure, and reduced stress symptoms in individuals practicing mindfulness. These benefits can translate into fewer sick days and higher energy levels for teacher trainers.

Job Satisfaction and Professional Fulfillment: Mindfulness is linked to greater job satisfaction and a sense of purpose. Rodriguez et al. (2021) found that educators who practice mindfulness reported enhanced professional performance and a stronger connection to their work.

Emotional and Social Support: Mindfulness boosts social well-being by promoting a sense of connection. The Kimsukopama Sutta emphasizes interpersonal relationships, compassion, and patience—all enhanced by mindfulness. Teacher trainers practicing mindfulness may improve relationships with colleagues and students, fostering a supportive environment.

4. Conclusion

Integrating mindfulness into teacher trainers' lives can significantly reduce stress and enhance well-being. Rooted in the Satipatthana Sutta and supported by modern evidence, mindfulness aids emotional regulation, mental clarity, and resilience. It fosters professional satisfaction, creating a healthier educational system where educators manage stress and engage positively with students. Mindfulness practices like meditation and present-moment awareness help trainers find inner calm and fulfillment. As research expands, mindfulness's role in professional development will likely grow, providing a pathway to healthier, balanced lives for teacher trainers.

5. Keywords

Conflict Resolution, Mindfulness, Social Fragmentation, Theravada Buddhism

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Mahaweli System H: a Review

W.K.D. Keerthirathne, M.W.N.U. Gunasinghe, D.M.T.U.K. Dissanayake, H.G.C. Sampath, D.J.K. Ihalagedara and S. Gunarathne

Faculty of Social Sciences & Humanities, Rajarata University of Sri Lanka. keerthirathna@ssh.rjt.ac.lk

1. Introduction

The main aim of this research was to study how all-inclusive development including expansion of settler families, distribution of settlements, growth of population, meeting basic needs, implementation of social infrastructure facilities and economic infrastructure facilities have been taking place in the Mahaweli system H from 2018 to 2022. The Mahaweli Development Project was one of the gigantic physical and human resources development programs executed in the country, and it has numerous objectives, giving a tremendous enhancement to the national economy of Sri Lanka (Mahaveli Authority of Sri Lanka, 2018). The contemporary Mahaweli area covers 15 administrative districts in Sri Lanka comprising 47 divisions and 223 units in 10 Mahaweli systems. The Mahaweli areas comprise Polonnaruwa, Batticaloa, Ampara, Badulla, Trincomalee, Matale, Anuradhapura, Kurunegala, Mullaitivu, Vavuniya, Ratnapura, Monaragala, Hambantota, Kandy and Nuwara Eliya districts. System H was the first area to be settled under the Accelerated Mahaweli Development Program, settling approximately 500 families in the area in 1975 and accelerated from 1978 (Mahaweli Statistic 2018-2022, (2022). System H consists of 43,500 ha (108,000 ac) of farm area in the Kala Oya River basin of the Mahaweli Project and is located in the low country dry zone approximately 125 m above sea level. Five major reservoirs: Kandalama, Dambulu-Oya, Kalawewa, Rajangana, and Angamuwa provide water storage facilities for different system sections (Jayawardene, 1983).

Mahweli H system mainly lies in two districts: Anuradhapura and Kurunegala. Thambuttegam, Rajanganaya, Thalawa, Nochchiyagama, Ehetuwewa, Galgamuwa, Nuwaragam Palatha Central, Palagala, Galnewa and Ipalogama are the divisional secretariat divisions belong to these two districts. According to the census in 2018, system H includes 7 blocks and 26 units. The gross area (ha) is 26 80,803 and Developed area (ha) is 48,140. The number of town centers is 5: Nochchiyagama, Thambuththegama, Thalawa, Galnewa, and Meegalawa and area centers are 3: Bulnewa, Mahailluppallama Eppawala. The total population available in this system H area is 51492. The male population in this area is 24010. The female population is 26150.

2. Materials and Methods

This research was conducted based on a literary survey and focused on the Mahaweli Development Project, a significant physical and human resources development program in Sri Lanka. The data was collected over five consecutive years from 2018 to 2022. The data was analyzed using the descriptive analysis method, which falls under the quantitative research approach, with the assistance of SPSS.

3. Results and Discussion

İn the data analysis process, it was illustrated the increase in settler families in the Mahaweli System H area from 2018 to 2022. The total number of settler families showed a significant rise, growing from 62,054 in 2018 to 77,914 in 2022, an increase of 15,860 families, approximately 25.6% over the five years. Breaking this down further, the number of farmer

families grew from 28,469 in 2018 to 33,619 in 2022, reflecting an increase of 5,150 families or around 18.1%. Conversely, the number of non-farmer families surged from 33,585 in 2018 to 44,295 in 2022, marking an increase of 10,710 families or about 31.9%. These annual growth rates revealed that while the number of farmer families grew relatively steadily with a slight acceleration in recent years, the growth rate of non-farmer families was more pronounced, especially between 2019 and 2022, indicating a faster expansion relative to farmers.

According to the research findings, the total population has increased from 228,432 in 2018 to 242,844 in 2022, representing a growth of 14,412 people, or approximately 6.3%, over the five years. Annual growth rates revealed a variable pattern. The population grew slightly by 354 people (0.15%) from 2018 to 2019, and it increased by 396 people (0.17%) from 2019 to 2020. The growth rate then accelerated from 2020 to 2021, with an increase of 2,158 people (0.94%). Finally, from 2021 to 2022, the population surged by 11,504 people (4.97%). This data has indicated a gradual increase in the growth rate over time, with a marked acceleration in the final year of the period under study.

Over these five years, the total number of houses increased from 56,494 in 2018 to 60,519 in 2022, marking a growth of 4,025 houses, or approximately 7.1%. The annual growth rates have exhibited a varied pattern. From 2018 to 2019, there was a decrease in the number of houses from 56,494 to 55,807, a drop of 687 houses or about 1.2%. This was followed by a significant increase from 2019 to 2020, with the number of houses rising to 57,599, an increase of 1,792 houses or approximately 3.2%. In the subsequent year, from 2020 to 2021, the growth was minimal, with the number of houses increasing slightly by just 19 houses to 57,618, reflecting a growth rate of only 0.03%. However, from 2021 to 2022, there was a significant rise in the number of houses, which surged to 60,519, an increase of 2,901 houses or about 5.0%. This data underscores a generally positive trend in housing development, with a significant increase in 2022.

The data analyzed here has illustrated a steady increase in the number of water seal latrines from 2018 to 2022, growing from 54,408 to 57,022. This reflected an overall rise of 2,614 latrines, or approximately 4.8%, over the five-year period. The growth was characterized by varying annual increments, with the highest annual increase occurring between 2018 and 2019 when the number of latrines rose by 1,089, or 2.0%. Subsequent years saw smaller increases, with annual growth rates fluctuating between 0.4% and 2.0%. Specifically, from 2019 to 2020, the increase was minimal at 0.4%, while the following year saw a slightly higher growth of 0.7%. The most recent year, 2021 to 2022, recorded an increase of 917 latrines, representing a 1.6% growth. Hence, it could be concluded that there was a gradual but consistent expansion in the availability of water seal latrines.

As shown in the analysis, the sources of drinking water in the Mahaweli System H area from 2018 to 2022, were 14,799 wells, 564 tube wells, and 5 reverse osmosis plants, alongside 124 other institutions constructed by MASL in 2022. The data from previous years has shown a general trend of increasing well and tube well installations, with some fluctuations in the numbers. For instance, in 2020, there were 17,611 wells and 659 tube wells, alongside 4 reverse osmosis plants and 92 other institutions. This data highlights a continued effort to improve access to clean drinking water through various sources, with an overall increase in the infrastructure provided over the years.

Social infrastructure facilities in System H from 2018 to 2022, highlighted several key trends. The number of schools remained consistently at 87 throughout the five years, indicating a stable educational infrastructure. Nursery schools saw a notable increase, growing from 153 in 2018 to 186 in 2022, reflecting expanded early childhood education resources despite some fluctuations in between. Post offices also maintained a steady count of 44, except for a minor increase to 45 in 2018, suggesting reliable postal services. The number of hospitals remained largely constant at 10, with a temporary rise to 11 in 2018, likely due to adjustments in healthcare infrastructure. Ayurvedic hospitals experienced a slight increase from 7 in 2018 to 8 in subsequent years, indicating a stable but growing presence of traditional medicine. Health centers initially increased from 35 in 2018 to 48 in 2020 but then there was a decline to 37 in 2022, reflecting potential shifts in healthcare demand, policy changes, or administrative decisions.

İn the final analysis which was conducted to find the detailed overview of the trends in economic infrastructure facilities, highlighting the dynamics within cooperatives, economic development centers, and banks. The data revealed a trend of growth and stability across these sectors from 2018 to 2022. Cooperatives exhibited a modest increase from 17 in 2021 to 18 in 2022, indicating a gradual expansion in cooperative activities. Economic development centers, initially stable at 1 from 2018 to 2020, doubled to 2 in 2021 and 2022, suggesting a concerted effort to bolster economic development infrastructure. Conversely, the banking sector experienced minor fluctuations, with a decrease from 54 to 52 banks between 2018 and 2020, followed by stabilization at 53 banks in the subsequent years. These trends collectively underscored incremental growth in cooperative efforts and economic development initiatives while reflecting a relatively stable banking environment which contributed to the sustainable development of the Mahaweli system H.

4. Conclusion

The annual growth rates of settler families revealed that while the number of farmer families grew relatively steadily with a slight acceleration in recent years, the growth rate of non-farmer families was more pronounced, especially between 2019 and 2022, indicating a faster expansion relative to farmers. Also, it has shown a gradual increase in the growth rate of the population over time, with a marked acceleration in the final year of the period under study. It was illustrated in this analysis that there was a positive trend in housing development, with a significant increase in 2022. There has been a gradual but consistent expansion in the availability of water seal latrines in Mahaveli system H. Continued efforts to improve access to clean drinking water through various sources, with an overall increase in the infrastructure provided over the years. Health centers initially increased from 35 in 2018 to 48 in 2020. However, there was a decline to 37 in 2022, reflecting potential shifts in healthcare demand, policy changes, or administrative decisions. Trends in economic infrastructure facilities, collectively underscored incremental growth in cooperative efforts and economic development initiatives while reflecting a relatively stable banking environment.

5. Acknowledgment

We would like to extend our gratitude to the Research and Publication Committee, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka, Mihintale for extending the financial support to conduct this research relevant to Mahaweli system H.

6. Keywords

economic infrastructure facilities, Mahaweli System H, settler families, social infrastructure facilities.

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Problems Associated in Teaching Science in an Inclusive Classroom.

R.B. Amila Sanjeewanie

Manager (SLTES), Professional Development Centre for Teachers, Galenbindunuwewa.
amilakeerthirathna78@gmail.com

1. Introduction

The fourth Sustainable development goal emphasizes equal and equitable education without limitations. Inclusive classrooms ensure the right to equal education access, engagement and achieving goals. Science is taught in the junior secondary level as a core subject and as stream in senior secondary level. As Science a systematic subject and emphasizes the scientific method to solve problems that arise in day-to-day life. Deaf students as an Isolated team lose their right for the gaining of scientific educational background with the impact of sensory defect. Teaching and learning science for deaf students presents unique challenges, Teachers subject Matter knowledge(SK), Pedagogical knowledge (PK) Technological Knowledge (TK) influence on learning teaching process of a subject. However, with the right approach and resources, it is possible to create an inclusive and effective learning environment. Numbers of attempts have been introduced for the ensuring inclusive education as National policies, reforms in schools, professional development, changes in curriculum, assessment, collaborations with stakeholders, promotion of research, awareness rising. Roald & Mikalsen (2000) showed that younger deaf children have conceptions of scientific facts similar to those of their hearing peers, those differences follow, at least in part, from deaf students' lack of experience with scientific reasoning and the mental models necessary for understanding and integrating new scientific facts (Hammer, 1996). processing strategies in classroom settings, interpreter training programs do not teach their students about the developmental or academic characteristics of deaf learners (Ramsey, 1997). However insufficient researches have done in Sri Lanka regarding teaching science in a deaf classroom. To fill the literature gap regarding teaching science in an inclusive classroom of Sri Lankan junior secondary level, providing guidance for educational reforms, modify in-service and pre service Teacher education programmes Studies should be done for the ensuring fourth sustainable development goal of education for all.

2. Material and Methods

This research is based on case study methodology specialty on study on social units. Qualitative approach was selected as qualitative data were collected. focusing on a school that was founded to protect the educational rights of children who are blind or deaf. This study based on only deaf students of the school A non-probabilistic sampling method was applied, a purposive sample of all 4 students were observed. Four deaf pupils from formal operational phases (over 12 years old) and a teacher were chosen as the sample. Data were collected with an interview with the science teacher and observing 7 lessons. Data were analyzed with thematic analysis of primary data and represented with tables, bars and graphs. Three objectives were considered.

Objectives of The Study:

- Identifying the nature of the learning teaching process in a deaf classroom.
- Studying the teachers' skills regarding the overcoming issues associated with the teaching in a deaf classroom
- Investigating problems faced by teachers while teaching science in a deaf classroom.

3. Results and Discussion

Non expert in science, diploma holder for sign language female teacher was responsible for the learning teaching process. Teacher faced several challenges with sharing knowledge, skills and attitudes with deaf students. Principal obstacles associated with communication between deaf pupils and non-deaf teachers. Sign language, verbal language, visual aids, video clips were used for the communication. Through trial-and-error methods students were able to recognize a few words from lip motions. Due to the abstract nature, the majority of the physics and chemistry concepts were challenging to teach with sign language. Based on observations, male students who are completely deaf and slow learners show interest in biological concepts specifically locomotion of animals. They demonstrate their enthusiasm by making loud noises to convey their satisfaction and by showing horses moving quickly. Excessive time is needed for the formation of concepts with different approaches. Classroom is totally diversified and teacher should have different strategies for ensuring equal education.

Table 1: Nature of Students

Defect	Total deaf and slow learner	Partial deaf	Only deaf	Deaf and slow learner
No of students	1		2	1
Percentage	25%	0	50%	25%

Students of 75% were deaf and 25% total deaf a huge variation can be identified. The percentage of slow learners is 50% physical and mental issues that disturb the formation of scientific method. Out of 50% of the total participants were male and 50% female. Half of the sample consists of slow learners. (Table 1).

Table 2: Gender

Gender	Female	Male
Number	2	2
Percentage	50%	50%

Table 3: Problem Faced by Students

Problem	Students' cognitive obstacles	Students' obstacles to abstract thought	Poor glossary regarding concepts.
Number of students	3	4	4
Percentage	75%	75%	100%

Three themes were identified as cognitive obstacles, obstacles to abstract thought, poor glossary. Seventy-five percent of students have trouble in writing ordinary Sinhala nouns like “ant,” “bear,”, “bat” and so Students were unable write names for animals on the blackboard. A poor glossary was established regarding the animal’s world. Vocabulary associated with Chemistry and Physics in Comparatively lower than Biology themes. Students of 90% gained proficiency in handling laboratory equipment. Pupils lack awareness for the necessary skills to think abstractly about ideas like mass, reproduction, qualities of energy, and so on.

Table 4: Problems Faced by Teacher

Problem /no of observation	Lack of physical resources for remedying deafness	Indicate experience of teachers for teaching science	Teachers’ Insufficient skills related to the broad content
Observation 1	30		
Observation 2	20	50	30
Observation 3	15	50	35
Observation 4	35	55	10
Observation 5	15	65	20
Observation 6	5	40	55
Observation 7	15	50	35
Avg	135/700=19.8%	360/700=50%	205/700*100=29.9%

Three themes were identified by analyzing observations as Inadequate experience of teachers, lack of physical resources for reading deafness, teachers Insufficient skills related to the broad content. Inadequate experience regarding teaching Science was 50% and students' insufficient skills related to the broad concepts make barriers on formation of concepts was 30%. Insufficient physical resources influence on learning teaching process by 20%.

4. Conclusion.

- Due to poor communication insufficient glossary is developed associated with science.
- Students' foveation can be seen for biology themes than others.
- Teachers' knowledge, attitudes, skills regarding both science and sign language is not in up to the level.
- Video clips, hands on activities, group works done.
- A technology integration was seen for the formation of concepts.
- Formation of concepts regarding physics and chemistry themes were comparatively difficult.
- Teachers' subject matters, pedagogical, technological knowledge were not up to the level.

5. Acknowledgement.

I would like to thank Teachers and students of Deaf for providing the necessary resources and facilities. Special thanks to the principal of the institute for their insightful guidance and encouragement throughout the work. Lastly, we appreciate the feedback and suggestions provided by our peers during the development of this abstract.

6. Keywords

Biology, Deaf, Inclusive classroom, Science, Slow learners

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Real-Time GPS-Based Bus Tracking System to Improve Public Transportation in Sri Lanka

M.D.C.J. Gunathialake and A. Sharanjah

Department of IT, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka, Mihintale, Sri Lanka. chathura@ssh.rjt.ac.lk

1. Introduction

Public transportation systems play a crucial role in urban mobility, enabling the daily movement of millions of passengers. However, inefficiencies such as delays and a lack of real-time information often led to passenger dissatisfaction. Traditional bus services generally lack real-time tracking capabilities, causing unpredictable wait times and limited communication between passengers and service providers. The advent of Information Technology and the Internet of Things (IoT) offers promising solutions to address these issues.

This project aims to develop a real-time bus tracking system that utilizes Global Positioning System (GPS) technology to provide passengers with accurate Estimated Time of Arrival (ETA) information. By harnessing real-time data, the system is designed to enhance the efficiency of bus services, reduce waiting times, and improve communication among passengers, drivers, and bus operators.

The primary objectives of this project include developing:

- A data collection module to monitor buses' real-time location and speed,
- Mobile applications for passengers, drivers, and bus operators, and
- A smart bus halt display that shows the estimated arrival time of the next bus.

This system is intended to not only enhance the passenger experience but also provide valuable insights for bus operators, contributing to a more efficient public transportation system.

2. Materials and Methods

The methodology for this study includes a structured data collection process, machine learning model development, and deployment of a GPS-enabled prediction system to improve the reliability and efficiency of bus services along the Colombo 15 route.

Data Collection:

- **Route Selection:** The Colombo 15 bus route was selected as the sample route due to its high passenger volume and significance within the urban public transportation network.
- **Data Points**: Data was collected at every bus stop and major halt along the Colombo 15 route, with arrival times for each bus.
- **Scheduled Time Retrieval**: Scheduled arrival time was obtained from the local bus depot, providing a reference for comparing actual arrival times.
- **Delay Calculation**: Using the scheduled times and actual arrival times, the delay at each bus stop was calculated. This information forms the core dataset, providing insight into typical delays and variability along the route.

Data Processing:

- **Cleaning and Preprocessing**: Collected data was cleaned to remove any inconsistencies, and missing values were handled. Additionally, timestamps were standardized to ensure accuracy in calculating delays and ETA predictions.
- **Feature Engineering**: Key features such as delay patterns, time of day, day of the week, and location were identified and created to enhance the model's predictive capabilities.

These features help the model learn patterns in bus travel times and delays more effectively.

Machine Learning Model Development:

- **Model Selection and Training**: Using data mining concepts, a machine learning model was developed to predict the Estimated Time of Arrival (ETA) for each bus stop.
- **Training and Testing**: The model was trained using historical data from the bus route, focusing on learning the relationship between scheduled times, delays, and actual arrival times. A portion of the data was held out for testing to validate the model's predictive accuracy.
- **Performance Evaluation**: The model was evaluated based on prediction accuracy, used to ensure reliable ETA predictions.

System Deployment:

- **GPS Module Integration**: The trained model was deployed on a GPS-enabled device installed on each bus. The GPS module tracks the real-time location of the bus and transmits this data to a centralized database.
- **Real-Time Data Update**: The GPS data is continuously updated in the database, allowing the model to adjust ETA predictions in real-time based on the bus's current position and speed.

Output and User Interface:

- **Mobile Application**: The predicted ETA for each bus stop is displayed to passengers via a mobile application, offering real-time information on bus arrival times.
- **Smart Bus Halt Displays**: The ETA is also displayed at smart bus halts along the route, providing passengers at bus stops with accurate and real-time information on the next bus's arrival.

Ongoing Data Collection and Model Refinement:

- **Continuous Data Collection:** As the system operates, it collects ongoing data on bus performance, delays, and ETAs, which are stored in the database.
- **Model Updates**: The collected data is periodically used to retrain and improve the model, ensuring it adapts to new patterns and continues to provide accurate predictions as traffic conditions and other factors change.

This methodology ensures a robust, real-time bus tracking system, which enhances passenger experience and operational efficiency in public transportation along the Colombo 15 route.

3. Results and Discussion

The pilot test conducted on a selected bus equipped with the real-time tracking system yielded promising results, demonstrating the system's accuracy and reliability in predicting Estimated Time of Arrival (ETA). Key observations from the test are as follows:

Accuracy of ETA Predictions:

- The system achieved high accuracy in predicting ETAs, with minimal deviation from the actual arrival times recorded at each bus stop.
- On average, the ETA predictions varied by less than 2 minutes from the actual arrival times, confirming the model's ability to account for dynamic variables such as traffic conditions and speed variations effectively.

System Reliability:

- The GPS module and data processing algorithms functioned smoothly throughout the pilot test, providing consistent real-time location data.

- The ETA predictions were updated in real-time as the bus progressed along its route, demonstrating the system's ability to adapt to real-time conditions and deliver reliable information to users.

Potential Impact on Waiting Time:

- The preliminary data suggest that implementing this system across all buses could help reduce average waiting times by up to 30%, leading to improved time management.

The pilot test demonstrated that the real-time bus tracking system is both accurate and reliable in predicting ETAs, with minimal deviation from actual arrival times. This technology has strong potential to address passenger frustrations related to unpredictable waiting times by offering live arrival information, enabling better planning and reducing average wait times.

Implementing this system across all buses in Sri Lanka could significantly enhance passenger satisfaction and increase the appeal of public transportation by improving reliability. The initial success of this pilot suggests that the system can be scaled up to create a more efficient, dependable public transit network in Sri Lanka, benefiting both passengers and operators.

4. Conclusion

This research demonstrates the potential of a real-time bus tracking system, utilizing GPS technology and machine learning, to improve the reliability and efficiency of public transportation in Sri Lanka. The pilot test on the Colombo 15 route revealed that the system can accurately predict the Estimated Time of Arrival (ETA), providing timely and reliable information that reduces passenger wait times and enhances overall user satisfaction.

By scaling this system across the entire bus network, Sri Lanka's public transportation infrastructure can address long-standing issues of unpredictability and passenger dissatisfaction. The success of this pilot not only validates the effectiveness of integrating IoT with data-driven models but also underscores the feasibility of using such systems to modernize urban transit. Future work should focus on expanding the system to additional routes, refining prediction accuracy, and integrating with other transportation systems to further elevate the standard of public transportation in Sri Lanka.

5. Keywords

Estimated Time of Arrival, GPS, IoT, Machine Learning

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Sustainability of Youth Careers: Vocational Personalities and Career Choice Fit of Agricultural Undergraduates at Rajarata University of Sri Lanka

J.D.T.D. Jayakody and S.M.C.B. Karalliyadda

Department of Agricultural Systems, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka. tdilharajayakody@gmail.com

1. Introduction

Career sustainability enables a happy, healthy and productive workforce. It is understood by investigating its key dimensions, i.e. person, context and time. Higher Education Institutes are critical on grooming undergraduates and trying possibilities of aligning career and person fit. However, it is evident that Sri Lankan university graduates are often restored to stop-gap jobs without utilizing their academic expertise or potential (Gunarathne, Ramanayake, & Panagoda, 2018). Particularly, agriculture graduates who followed STEM education in English are highly and fully employed, yet their presence is not only limited to the agriculture sector but also expanded to various other economic sectors (e.g., education, public administration, engineering, manufacturing, scientific and IT) (Gunarathne, Ramanayake, & Panagoda, 2018; Rambodagedara & Jayasinghe, 2019), with various career choices i.e. from professional (teaching, science, and engineering), to managerial, technical, and even clerical jobs. This diverse engagement indicates an education-employment misalignment and a challenge for career sustainability. Underline factors for graduates to seek such diverse employment destinations may include job security, income stability, long-term career prospects, and career-vocational personality fit (Gunarathne, Ramanayake, & Panagoda, 2018; Hadiyati & Astuti, 2023; Puvendran, 2016; Rambodagedara & Jayasinghe, 2019; Vickraman, 2019).

Career-vocational personality fit by Hollands (1985), suggests that individuals are naturally drawn to careers that align with their vocational personalities, distinct personality types (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) that influence an individual's career preferences, work style, and satisfaction in various professional environments. Accordingly, a mismatch of career-vocational personality fit may challenge the sustainability of careers leading to various issues such as job dissatisfaction, burnout, and reduced job productivity.

The objective of this research is to explore the vocational personalities of agricultural undergraduate students, and their connections to potential career choices, and to analyze any gender-based associations in these relationships. This study would clarify whether undergraduate students' vocational personalities and their compatibility with chosen careers contribute to sustainable careers from an individual-oriented standpoint.

2. Materials and Methods

This study is mainly based on Holland's theory of career choice (1985). It emphasizes that individuals who opt to work in an environment matching their personality type are more likely to achieve success and satisfaction, thereby potentially enhancing their career sustainability. Primary data was collected from 110 voluntarily participated agriculture undergraduates at Rajarata University of Sri Lanka in 2024, using a self-administered structured questionnaire. Individual personalities were identified with Holland's Self Direct Search (SDS) (Holland, 1997). Each participant's dominant personality was determined based on the highest score in the RAISEC model (R- *Realistic* A- *Artistic*, I- *Investigative*, S- *Social*, E- *Enterprising*, and C- *Conventional)*. Career choices were categorized according to Holland's career codes (Holland, J.L. 1997). Descriptive statistics and Chi-square tests were used to analyze data using SPSS20.

3. Results and Discussion

According to the results, female undergraduates (70.9%) were prominent in the sample and many (59.1%) have studied biology stream at their General Certificate of Education Advanced Level Examination. A higher number of these undergraduates were residing in suburban areas (53.6%), followed by urban (26.4%) and rural areas (20%).

Vocational: Personalities

Results revealed that *Investigative* (61.8%) personality was the prevalent vocational personality followed by *Social* (21.8%), *Artistic* (6.4%), *Realistic* (3.6%), *Conventional* (3.6%), and *Enterprising* (2.7%) yet has no significant association (X^2= (5, N= 110) = 8.627, p = 0.125) with the gender (Figure1). The predominance of the Investigative personality suggests that most undergraduates have a strong inclination towards intellectual activities, such as problem-solving and analysis, which are essential for scientific and research-oriented jobs such as scientists, chemists, and lab technicians. The presence of a Social personality indicates a preference for interpersonal work in collaborative environments, which aligns well with jobs in education and community services such as teaching, counseling, and social workers. The lack of gender association may be due to a common academic environment and experiences among both parties.

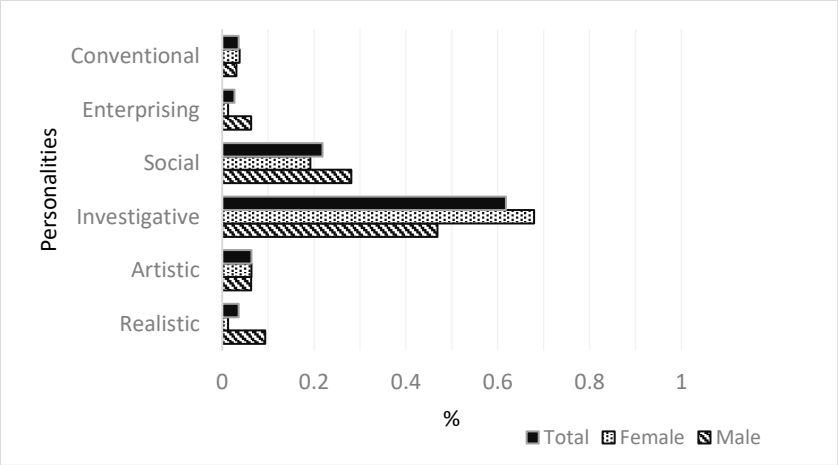


Figure 1: Undergraduates' vocational personality distribution (Source: Authors' survey, 2024)

Career Choices

Results indicate that undergraduates' career choices are diverse and can broadly be categorized into distinct career roles as, administrative and managerial roles (32%), scientific and technical roles (29%), educational roles (28%), and entrepreneurial (11%) (Table 1). This may be a result of broad skills, personal interests and the evolving job market. However, none of these career roles is significantly varied (X^2= (3, N= 110) = 1.619, p = 0.655) between gender types indicating having similar interests and opportunities in an inclusive environment that enables both genders to pursue roles with equality.

Table:1 Undergraduates' Career Choice distribution and categories of career roles

Career choices		**Categories of career roles**			
		Particulars	**Responses %**		
Particular	**Responses%**		**Total (n=110)**	**Male (n=32)**	**Female (n=78)**
Office worker	6	Administrative and managerial	32	41	28
Banker	10				
Farm manager	5				
Manager	9				
Public administrator	1				
Lab technician	4	Scientific and technical	29	25	31

Chemist	1				
Scientist	25				
Entrepreneure	9	Entreprenurial	11	9	12
Farmer	2				
Teacher	11				
Lecturer	12	Educational	28	25	29
Extension officer	5				

(Source: Authors' survey, 2024)

Alignment Between Career Choices and Vocational Personalities

The results reveal a significant association (X^2= (15, N= 110) = 29.642, p = 0.013) between vocational personalities and career choices. Investigative and social personalities are fairly and evenly distributed across educational, scientific technical, and administrative career roles with *Investigative* types primarily in scientific and technical fields and *social* types more common in educational roles (Table 2). This distribution suggests that undergraduates are likely to pursue careers compatible with their personality types, supporting Holland's theory of personality-career alignment. The compatibility between personalities and career choices may ultimately lead to greater happiness and productivity for undergraduates, fostering sustainable career paths.

Table 2: Association of undergraduates' Career roles and vocational personalities

Vocational personalities	Career roles				Total
	Educational	Scientific and technical	Administrative and managerial	Entrepreneurial	
Realistic	1	1	2	0	4
Artistic	1	1	1	4	7
Investigative	17	23	21	7	68
Social	10	5	8	1	24
Enterprising	0	0	3	0	3
Conventional	2	2	0	0	4
Total	31	32	35	12	110

(Source: Authors' survey, 2024)

4. Conclusion

The findings indicate that agricultural undergraduates predominantly exhibit social and investigative vocational personalities. Their prospective career choices are diverse, competency-based, and extend beyond the agricultural sector highlighting competencies that match various sectors. There is a modest association between certain vocational personalities and career choices indicating a happy, healthy, and productive workforce with career sustainability. However, the likelihood of applicability of Holland's theory may be limited, due to the influence of other underlying factors which influence career sustainability.

To improve career alignment, universities should consider enhancing curricula and career counselling services to help students identify roles that align with both their academic expertise and vocational personalities. Further, it is recommended that future research explores additional factors influencing career choices among agricultural undergraduates, using a broader and more representative sample to gain deeper insights.

5. Keywords

Career choice, Holland's theory, Personality, RAISEC

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The Impact of Mindfulness on Teacher Trainers' Teaching Practices and Interpersonal Relationships

Ven. B. Nandabodhi

Buddhist and Pali University. nandaboodhi@gmail.com

1. Introduction

Mindfulness, or "Sati" in Pali, is a core Buddhist practice focused on cultivating present-moment awareness and non-judgmental observation of thoughts, feelings, and bodily sensations. Recently, mindfulness has been increasingly valued in Western educational settings for its potential to improve well-being and performance. This study investigates how mindfulness influences teacher trainers' teaching practices and interpersonal relationships, using insights from both Buddhist and Western viewpoints. The objectives include examining its effects on interpersonal relationships, its role in stress reduction, and its impact on teaching practices within the Sri Lankan educational context. In Buddhism, relationships are seen as reflections of one's inner state, and mindfulness is thought to enhance these connections by promoting compassion and awareness. This study highlights how Buddhist-based mindfulness practices can improve interpersonal relationships among educators.

2. Materials and Methods

The researcher has utilized a mixed-methods approach to investigate the impact of mindfulness on teacher trainers. The research methods include: Literature Review: A comprehensive review of relevant literature on mindfulness, teacher training, and educational psychology will be conducted. The researcher has provided a theoretical foundation for understanding the potential benefits of mindfulness in the context of teacher training. Case Studies: In-depth case studies of successful mindfulness-based teacher training programs have been analyzed to identify best practices and key factors contributing to their effectiveness. Additional details have been included regarding data collection and analysis: a systematic review of mindfulness literature was conducted to establish theoretical foundations, while the case studies utilized structured interviews and thematic analysis to gather in-depth insights into teacher trainers' experiences.

3. Results and Discussion

To understand the impact of mindfulness, it is essential to define it within both Buddhist and Western paradigms. In Buddhism, mindfulness is a path to enlightenment, fostering deep self-awareness, compassion, and equanimity (Analayo, 2003). The Buddha's teachings on the Four Foundations of Mindfulness (Satipatthana) provide a practical framework for cultivating mindfulness in daily life (MN 10). These foundations include:

- **Mindfulness of the Body:** Observing bodily sensations with awareness and non-judgment.
- **Mindfulness of Feelings:** Recognizing and accepting emotions without clinging or aversion.
- **Mindfulness of the Mind:** Observing mental states and thought patterns with clarity.
- **Mindfulness of Mental Objects:** Paying attention to the content of thoughts and emotions without getting carried away by them.

In Western contexts, mindfulness is often viewed as a psychological tool to enhance well-being and performance (Kabat-Zinn, 2003). Research has shown that mindfulness can improve

attention, reduce stress, increase emotional regulation, and promote prosocial behavior (Brown & Ryan, 2003; Grossman et al., 2004; Neff, 2003).

Mindfulness and Teaching Practices

Mindfulness can positively impact teacher trainers' teaching practices in several ways:

- **Enhanced Focus and Attention:** Mindfulness practices help teacher trainers maintain focus and attention during teaching, leading to more effective lesson delivery and classroom management (Langer, 1989). The Jataka tales, a collection of stories about the Buddha's past lives, illustrate the importance of mindfulness in maintaining focus and achieving goals. In the story of the "Wise Monkey" (Jataka No. 48), the monkey's ability to focus on his task despite distractions allowed him to succeed in retrieving the lost treasure.
- **Adaptability and Creativity:** Mindfulness encourages a flexible mindset, allowing trainers to adapt their teaching methods to meet the diverse needs of their students (Brown & Ryan, 2003). The Dhammapada, a collection of verses attributed to the Buddha, emphasizes the importance of adaptability and creativity in teaching: "Just as a skilled goldsmith removes impurities from gold, so the wise person removes impurities from their mind." (Dhp 438).
- **Reflective Teaching**: Regular mindfulness practice promotes self-reflection, enabling trainers to critically evaluate and improve their teaching strategies (Schon, 1983). The Buddha's teachings on the importance of self-reflection are evident in the Satipatthana Sutta, where he encourages practitioners to observe their thoughts, feelings, and actions with awareness and non-judgment.
- **Increased Emotional Intelligence:** Mindfulness fosters emotional intelligence, allowing trainers to better understand and manage their emotions and those of their students (Goleman, 1995). The Buddhist concept of "metta" (loving-kindness) emphasizes the importance of cultivating compassion and understanding towards others, which is essential for effective teaching.

Mindfulness and Interpersonal Relationships

In Buddhism, interpersonal relationships are guided by the principles of interconnectedness and compassion. Relationships reflect one's inner state, and mindfulness cultivation can enhance them. Buddhism's concept of dependent origination (Paticca-samuppada) emphasizes that all beings are interconnected, promoting empathy and compassion as individual and collective well-being are linked. The Four Noble Truths acknowledge suffering and its causes, while the Eightfold Path provides steps—such as right speech and action—to improve relationships. Mindfulness (Sati), or present-moment awareness, is central to Buddhism, supporting both individual well-being and stronger, more compassionate interactions with others.

Mindfulness can also positively impact teacher trainers' interpersonal relationships:

- **Empathy and Compassion**: Mindfulness fosters empathy and compassion, which are crucial for building strong, supportive relationships with colleagues and students (Neff, 2003). The Buddhist teachings on "karuna" (compassion) emphasize the importance of understanding and alleviating the suffering of others. The story of the "Compassionate Elephant" (Jataka No. 53) illustrates the power of compassion in transforming relationships.
- **Effective Communication**: Mindfulness enhances active listening and clear communication, reducing misunderstandings and conflicts (Siegel, 2007). The Buddhist

concept of "samma vaca" (right speech) emphasizes the importance of speaking truthfully, kindly, and usefully, which is essential for effective communication in any relationship.

- **Stress Reduction:** By managing stress effectively, mindful trainers are better equipped to handle interpersonal challenges and maintain positive relationships (Grossman et al., 2004). The Buddhist teachings on "upekkha" (equanimity) emphasize the importance of maintaining a balanced and accepting attitude towards life's challenges, which can reduce stress and improve interpersonal relationships.

Conflict Resolution

Mindfulness encourages a non-reactive and non-judgmental approach to conflicts. By observing our thoughts and emotions without getting caught up in them, we can respond to conflicts more skillfully. This approach aligns with the Buddhist principle of non-attachment (Anatta), which teaches us to let go of our ego and view situations more objectively.

Several case studies and empirical studies demonstrate the positive impact of mindfulness on teacher trainers' teaching practices and interpersonal relationships. For example, a study by Roeser et al. (2013) found that mindfulness-based interventions for teachers improved their classroom management skills, reduced stress, and increased job satisfaction. Another study by Jennings et al. (2018) found that mindfulness training for teacher trainers led to improvements in their self-awareness, emotional regulation, and ability to build positive relationships with students.

Research has shown that mindfulness practices can significantly improve interpersonal relationships. For example, a study by Carson et al. (2004) found that couples who practiced mindfulness meditation reported greater relationship satisfaction and improved communication. Another study by Barnes et al. (2007) demonstrated that mindfulness training reduced aggression and increased empathy in participants. In the context of teacher trainers in Sri Lanka, integrating mindfulness practices into their daily routines can lead to better relationships with colleagues and students. By fostering a mindful approach, trainers can create a more supportive and effective educational environment. In Sri Lanka, several teacher training programs have successfully integrated mindfulness into their curriculum. For example, the Mindfulness-Based Teacher Training Program at the University of Colombo has received positive feedback from participants, who report improvements in their teaching skills, stress management, and interpersonal relationships.

4. Conclusion

Incorporating mindfulness into teacher trainers' professional lives can greatly enhance their teaching practices and relationships, fostering a more supportive educational environment. While more research is needed on the long-term effects, current evidence shows that mindfulness could improve trainer effectiveness and educational quality. Rooted in Buddhism, mindfulness promotes interconnectedness, compassion, and empathy, which enrich communication and conflict resolution. For teacher trainers, this practice strengthens interactions with colleagues and students, contributing to a positive educational atmosphere.

5. Keywords

Empathy, Interpersonal Relationships, Mindfulness, Teaching Practices

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The Pedagogical Impact of YouTube: A New Era for Digital Literacy and Multimedia Learning

M.G.H.K. Wijerathne and Ven. Demunnewe Upali

Department of Library and Information Science, University of Kelaniya. erandakaushalya1@gmail.com

1. Introduction

YouTube has become a cornerstone of modern education, significantly contributing to digital literacy, multimedia learning, and the evolution of teaching methodologies (Greenhow, 2015; Hobbs, 2010). Its ease of access and adaptability cater to diverse learning styles, fostering self-paced education and democratizing knowledge globally (Bawden, 2008). This study explores YouTube's role in bridging gaps in education and advancing learning globally. More specially, it assesses the role of YouTube in formal education in developing critical digital skills and impacting education outcomes.

2. Materials and Methods

A mixed-methods approach was employed to assess the pedagogical impact of YouTube on students in the Library Science program at the University of Kelaniya. The quantitative data were collected through surveys, using stratified random sampling to capture representative demographic and academic perspectives. Qualitative data included semi-structured interviews, focusing on the experiences of the students with YouTube as a learning tool. Further, the content analysis of leading YouTube channels for education, their relevance, and quality were assessed in support of Library Science education (Mayer, 2009; Kay, 2012). In this way, the dual uses of YouTube will help improve not only digital literacy but also academic performance despite challenges.

3. Results and Discussion

Preliminary findings indicate that YouTube dramatically enhances student engagement and information retention for students in Library Science. From the survey data, 75% of the respondents identified that using YouTube aided in understanding complex topics. They gave an average score of 4.2 out of 5 on the Likert scale on better subject comprehension after viewing instructional videos. Figure 1 illustrates this positive impact on learning outcomes.

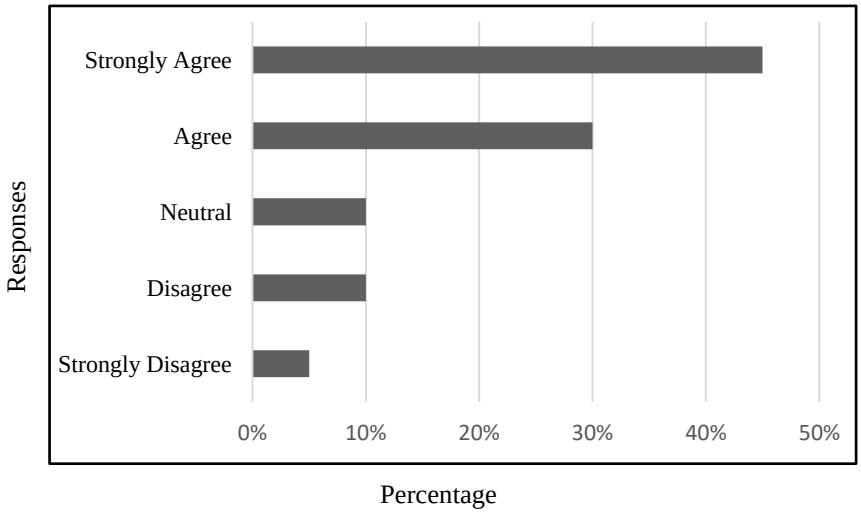


Figure 1: Distribution of Responses on Understanding Complex Topics After Using You Tube

Figure 1 presents the responses of Library Science students regarding how YouTube enhances their comprehension of specific difficult topics: 75% either "Strongly Agree" (45%) or "Agree"

(30%) that YouTube increases comprehension, and 15% were "Neutral," while a very small minority expressed disagreement (10%). Further, 82% cited that the multimedia presentations were effective in simplifying the ideas on the platform. Qualitative interviews resonated with the same message, as students expressed appreciation for YouTube as a "visual learning aid" that can simplify complex ideas.

Table 01 - students' preferences

Content Type	Percentage of Students Favoring
Tutorials	45%
Lectures	30%
Animations	25%

Table 1 represents students' preferences for educational content: tutorials are favored by 45% because of step-by-step explanations, 30% prefer lectures for structured learning, and 25% choose animations because they present complex ideas in a fun, simplified manner. These findings point out the efficiency of different multimedia approaches: 90% of the students appreciate the possibility to learn at their own pace on YouTube by having the opportunity to stop, rewind, and replay videos for better comprehension. Students spent an average of 2 hours per week on educational content, reinforcing YouTube's flexibility.

However, challenges include a range in the quality of content-the majority, 60% of respondents, were concerned about unreliable information. Further, 70% reported frequent distractions from noneducational videos that often-undermined study sessions. In interviews, these views were reiterated to point out how the design of the platform for engagement may work against focused learning.

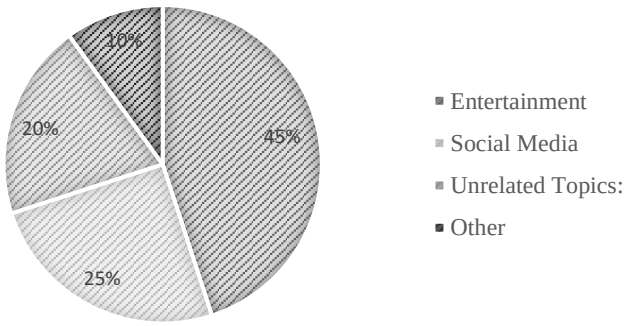


Figure 2: Common Distraction Encountered While Using You Tube for Educational Purposes

Fig. 02, The largest segment, comprising 45%, is entertainment content, including movies, music, and other leisure-focused videos that easily capture student interest and lead them away from academic material. Social media-related content, such as vlogs and influencer updates, accounts for 25% of distractions, while unrelated topics (20%) draw students' attention to random trending videos or unrelated tutorials. The smallest category, "Other" (10%), includes miscellaneous distractions like advertisements or notifications that also disrupt focus. This chart underscores how YouTube's user-engagement design can shift students' attention from their studies, reducing the overall educational impact of their study sessions on the platform.

4. Conclusion

YouTube is the transformative tool for digital literacy and learning about multimedia. It embodies self-directed learning, retention of knowledge, and a better grasp of concepts that are challenging. In preparing for this, educators must be trained in selecting quality content and integrating critical evaluation into learning frameworks, Hobbs, 2010 adds. Policy framers must now embed digital literacy frameworks so as to ensure responsible use of such tools, leading to more engaged and proficient learners.

5. Keywords

Critical content evaluation, Digital education, Digital literacy, Educational outcomes, Multimedia learning, Self-paced learning, YouTube

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The Role of Social Capital on Acquiring Technological Literacy in Sri Lankan Estate Communities

O.A.Y. Chamathya, K.A.S. Udayanga and T. Wijesundara

Department of Sociology, Faculty of Humanities and Social Sciences, University of Ruhuna, Matara.
yasasi.chamathya@gmail.com

1. Introduction

The purpose of the present study is to explore the role of social capital in fostering technological literacy among students in marginalized estate communities in Sri Lanka. Estate areas, predominantly inhabited by tea plantation workers, have long faced socio-economic disadvantages, including limited access to quality education and infrastructure (Udayanga, 2023, 2024; Warschauer, 2004). These challenges contribute to a persistent digital divide, with students in these regions lacking the resources necessary to engage meaningfully with technology, a critical asset in both education and employment (Selwyn, 2004). Social capital, defined as the networks, relationships, and shared norms within a community, can significantly impact how individuals' access and utilize resources like technology (Putnam, 2000). In this context, the study will investigate how family connections, peer networks, and support from local institutions, such as schools and community organizations, influence students' technological literacy. By examining these social structures, this research aims to assess the extent to which social capital can serve as a buffer, potentially mitigating the disadvantages estate communities face and providing alternative routes for skill development. This study sets out three main goals: first, to explore how social capital shapes access to technology and digital skills within estate communities; second, to understand whether social capital offers compensatory benefits that alleviate educational disparities in these areas; and third, to propose targeted interventions that could bridge the digital divide and support educational mobility (Baker & LeTendre, 2005). This research thus seeks to inform policymakers and educators about effective strategies to empower marginalized communities, helping to create more equitable opportunities for students' technological and educational advancement.

2. Materials and Methods

A case study approach was employed to provide an in-depth understanding of how community relationships and networks shaped students' access to technology and digital skills. The research was conducted in selected estate areas in Matara Akuressa, particularly targeting Tamil schools that historically faced limited access to technology and education.

Participants were purposively selected to capture diverse perspectives within these communities, including students, parents, teachers, and local community members. The purposive sampling criteria included several specific factors: (1) students aged 12 to 18 currently enrolled in local schools, ensuring an age range where technological skills are increasingly relevant for academic and personal development; (2) a mix of students from various socio-economic backgrounds within the estate community, to reflect different levels of access to technological resources; (3) parents and teachers who could provide insights into the support and limitations faced by students in accessing technology; and (4) local leaders and community members who play roles in shaping community resources and norms around technology. A total of 30 participants were selected to allow for an in-depth exploration of varied perspectives on social capital and technological literacy.

Data were collected through semi-structured interviews and focus group discussions (FGDs) with students, parents, teachers, and local leaders. These methods provided insights into participants' experiences and perceptions regarding the role of social capital in technological access. Additionally, observations of school and community settings were conducted to understand the contextual factors influencing technological access and usage.

Thematic analysis was used to analyze the data. Interviews and FGDs were transcribed, coded, and organized into key themes based on participants' narratives, with particular focus on family support, peer networks, and institutional engagement with technology. Informed consent was obtained from all participants, ensuring their voluntary involvement. Anonymity and confidentiality were strictly maintained to protect participants' identities throughout the research process.

3. Results and Discussion

The findings reveal five key themes: *Limited Access to Digital Resources and Poor Infrastructure*, *Parental Knowledge and Technology Networks*, *External Networks as Bridging Social Capital*, *Challenges Faced by Teachers and Administrators*, and *Community-Driven Collaborative Learning*. These themes illuminate how social capital influences technological literacy in estate communities and highlight critical areas for intervention.

Results indicate that limited access to digital resources and poor infrastructure severely hinder students' technological development. For instance, one participant stated,

"We are not allowed to use the computers either in Tamil School; some children even do not know how to switch on a computer" (Respondent 10, 27 years, female, laborer, in-depth interview).

This statement illustrates a systemic issue where students are not only deprived of resources but also lack foundational skills necessary for digital engagement. Investing in digital infrastructure, such as providing computers and reliable internet access in schools, is essential for fostering educational equity (Warschauer, 2004). Such investments would not only improve access but also empower students to develop crucial technological skills necessary for their academic and future professional lives.

The study reveals that many parents lack awareness of the importance of IT education. One participant highlighted**,**

"Most of the parents of these estate children work abroad due to financial issues, and these left-behind children are looked after by their grandparents, who have very limited social connections with their neighborhood" (Respondent 06, 35 years, female, housewife, in-depth interview).

This lack of awareness among caregivers about the value of digital literacy can create a gap in support for students' learning. Schools should implement community outreach programs aimed at educating parents and guardians about the significance of digital skills. Workshops or informational sessions can help parents understand how technology is integrated into education and its importance in today's job market (Putnam, 2000). For example, highlighting success stories of students who have benefitted from digital skills could motivate families to prioritize IT education.

Students who managed to connect with external networks, such as NGOs or social organizations, demonstrated improved digital skills. One participant noted,

"5% of the parents of this community send their children to private tuition classes to provide IT knowledge, all of them are well supported by the Church Community" (Respondent 15, 40 years, female, housewife, in-depth interview).

These external networks act as a form of bridging social capital, enabling students to acquire essential skills that may not be available through traditional educational paths (Baker & LeTendre, 2005; Hsieh, 2014). Expanding partnerships between local schools and organizations can enhance students' access to technology and training. For example, NGOs could offer workshops that provide hands-on experience with digital tools, helping to build a stronger technological foundation for students from marginalized backgrounds.

Teachers and school administrators face significant challenges in incorporating technology into the curriculum due to inadequate training and resources (Ertmer, 1999). For instance, educators

may feel overwhelmed by the rapidly changing technological landscape and lack confidence in their ability to teach digital skills. Professional development programs should be prioritized to equip teachers with the necessary skills and resources. Training that focuses on integrating technology into existing curricula, along with ongoing support, can empower teachers to foster a more technologically adept student body. For example, collaborative training sessions could facilitate knowledge sharing among educators, leading to improved confidence and innovative teaching methods.

The community-driven initiatives focusing on collaborative learning, such as peer support networks, have shown promise in enhancing digital skills. Participants noted that more tech-savvy students often assist their peers, creating a culture of collective learning. Structuring peer mentoring programs within schools can formalize these efforts, allowing students to benefit from each other's strengths. Schools could develop a mentorship framework where older or more skilled students help younger peers navigate technology, thereby reinforcing their own learning and fostering a supportive educational environment.

Overall, these findings suggest that a multi-faceted approach is necessary to improve technological literacy in estate communities. By addressing issues of access, parental engagement, teacher training, and community collaboration, stakeholders can work towards bridging the digital divide. Future policies should emphasize enhancing digital infrastructure, fostering external partnerships, and promoting community-driven initiatives that empower students and families alike. Monitoring and evaluation of these interventions will be essential to ensure they effectively meet the community's evolving needs and lead to sustainable change.

Table 1. Summary of Findings and Recommendations

Key Theme	Findings	Recommended Interventions
Limited Access to Digital Resources and Poor Infrastructure	Students lack access to computers and internet, hindering technological skills development.	Invest in digital infrastructure in schools to provide essential resources.
Parental Knowledge and Technology Networks	Many parents are unaware of the importance of IT education, resulting in gaps in student support.	Implement community outreach programs to educate parents on digital skills.
External networks and Bridging Social Capital	Students connected with NGOs or social organizations show improved digital skills.	Expand partnerships with local organizations for technology access and training.
Challenges Faced by Teachers and Administrators	Teachers face challenges in integrating technology due to inadequate training and resources	Prioritize professional development programs focusing on technology integration.
Community-Driven Collaborative Learning	Peer support networks enhance digital skills among students.	Formalize peer mentoring programs to foster collaborative learning.

4. Conclusion

This research highlights the critical role of social capital in shaping technological literacy among students in Sri Lanka's estate communities. A key principle derived from the results is that students from middle-class families benefit from stronger social networks and access to resources, leading to significantly higher levels of technological literacy compared to their peers from lower socioeconomic backgrounds. However, exceptions exist, as some students in marginalized communities have successfully accessed external networks, indicating potential pathways for overcoming barriers. Despite the overarching trends, the challenges faced by estate students-including limited access to devices, internet connectivity, and guidance—persist. These issues reflect a complex interplay of socio-economic factors that can undermine educational equity. Furthermore, while some students benefit from external networks, it is

essential to recognize that not all individuals within marginalized communities can leverage these opportunities. This variability suggests that the effectiveness of social capital in enhancing technological literacy may depend on various contextual factors, including individual motivation, parental support, and the specific nature of community resources available (Bourdieu, 1986; Putnam, 2000).

In discussing potential limitations, this study primarily focused on estate communities in Sri Lanka, which may limit the generalizability of the findings to other contexts. Additionally, the reliance on qualitative methods may introduce subjectivity in interpreting participants' experiences. Future research could employ a mixed-methods approach to provide a more comprehensive understanding of the nuances in social capital and technological literacy across diverse populations. The theoretical implications of this study suggest that social capital can serve as a valuable framework for understanding educational disparities in technology access. Practically, there is an urgent need for interventions aimed at improving digital infrastructure in estate areas and enhancing the social capital of these communities. Programs fostering stronger connections between students, schools, and external organizations, along with affordable technology and training initiatives, are critical. In conclusion, collaborative efforts among government agencies, NGOs, and community leaders are essential for creating a more equitable educational landscape. Specific recommendations include establishing mentorship programs, enhancing community access to technology, and developing policies that support inclusive educational practices. By prioritizing these strategies, stakeholders can empower students and families, ensuring all children have the opportunity to thrive in an increasingly digital world.

5. Key words

Estate Community, Marginalized, Social Capital, Technological Literacy

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The Use of Phonics Instructions as a Reading Instructional Approach for Primary Graders: English as a Second Language (ESL) Primary Teachers' Understanding and Classroom Practices (A Case Study)

J.W. Samaraweera

University of Kelaniya, Sri Lanka. jayaniwasana1999@gmail.com

1. Introduction

English language education in Sri Lankan government schools begins in the first grade, focusing on speaking, listening and vocabulary skills through the Activity Based Oral English (ABOE) program in the first and second grades (Aloysius, 2015; Rohan, 2004). From third- to fifth-grade reading, students develop reading skills through look-and-say and read-and-find approaches (Gunawardane, 2012). However, these approaches rely heavily on memorising word pronunciations based on spelling patterns rather than a systematic and scientific method of reading. The National Reading Panel invented phonics as a scientifically proven approach for teaching reading that motivates young readers to read by acquiring letter-sound correspondence instead of the rote-memorisation of vocabulary (National Reading Panel, 2006). Nevertheless, phonics instructions reinforce word automaticity and confidence in reading texts making it crucial for ESL teachers to incorporate phonics instructions in the primary grades where ESL students begin second language acquisition (Learning Point Associates, 2004). Thus, this case study intends to;

- Analyse ESL primary teachers' (government school teachers in Embilipitiya educational zone) understanding of the phonics instructions identifying specific misconceptions and gaps in the comprehension of phonics instructions, and
- Examine the phonics instructional methods teachers utilise in teaching reading in the ESL primary classroom.

2. Materials and Methods

This study employs a mixed-methods approach, using both quantitative and qualitative data collection techniques to investigate the use of phonics instruction in ESL classrooms in the Embilipitiya educational zone. The quantitative data was collected through a close-ended questionnaire administered to ESL teachers to gather background information and confirm participation in case studies. This phase utilised purposive sampling with maximum variation to select eight teachers based on years of experience, school type, and educational qualifications. Convenience sampling was also used to select the research setting. The qualitative data was collected through semi-structured interviews and non-participatory classroom observations. Interviews and observations were designed to gather detailed insights on phonics instruction during reading lessons. Thematic analysis, guided by Braun and Clark's (2006) six-phase framework, was used to analyse qualitative data, and the criteria set by St. Mary's University (2023) were employed to assess phonics instruction during classroom observations. These criteria focus on several key aspects: the extent to which teachers review letter-sound correspondence; articulation of phonemes; instructional activities employed; the accuracy of phonics-related instructions and the level of students' engagement in phonics-based tasks. Quantitative data from the questionnaires was analysed using Microsoft Excel.

3. Results and Discussion

Table 1 displays the four major themes of the teachers' understanding and the use of phonics instructions in ESL primary classrooms. Participants are represented with pseudonyms.

Table 1: Responses of the participants under each theme.

Theme	Participants' Responses
Definitions of Phonics Instructions	Ms. A, B, C: Teaching the correct articulation of individual sounds. Ms. D, E: Teaching pronunciation using Received Pronunciation (RP). Ms. F, G: Accurate pronunciation as phonics instruction. Ms. H: Critical aspect of the sound system in language learning. Overall Agreement: Phonics involves mastering accurate sounds for pronunciation.
Importance of phonics instructions	Ms. A, B, H: Enables reading, even without understanding meaning. Ms. B, H: Reading is impossible without phonics. Ms. C, D, E, F: Essential for correct pronunciation (silent or aloud). Ms. D: Important for writing and word recognition. Ms. G: Necessary for understanding vowel sound variations. Overall Agreement: Phonics is crucial for reading, writing, and pronunciation development.
Phonics-Based Activities in the Classroom	Ms. A: Uses poems to teach rhymes and sounds. Ms. B: Uses "Radiant Way" books by S.F.R.A. Cader and flashcards for phonics group activities. Ms. C: Uses visual aids to teach word formation. Ms. D, E: Focus on exercises to teach different sounds of vowels. Ms. F, G: Use "Writing Practice" textbooks, issued by the government to teach phonetics. Ms. H: Uses word boards, posters, and the "Phonics Reader" series. Overall: Teachers employ diverse tools and activities to enhance phonemic awareness.
Frequency of Phonics Activities	Ms. A: Focuses more on reading comprehension than phonics. Ms. B: Dedicates daily time to phonics and reading. Ms. C: Uses phonics in reading passages and the "Phonics Reader" series. Ms. D: Follows phonics activities in workbooks when available. Ms. E, G: Phonics is emphasised early in the year but decreases over time. Ms. G: Phonics is taught during the first four months of third grade. Ms. F: Limited time to focus on frequent phonics lessons. Overall: The use of phonics instruction decreases as the year progresses, with the focus shifting to other language skills.

Table 2 briefly projects the results of the classroom observation.

Table 2: Use of phonics instructions in the ESL primary classroom.

Teacher	Focus of lesson	Phoneme articulation (Correct-✓ Incorrect-✗ Not Applicable- NA)	Key activities used	Accuracy of instructions (Accurate-✓ Inaccurate - ✗)	Students' engagement	Alignment with the phonics principles (Aligned-✓ Not aligned - ✗)
A	Multiple graphemic represen	✓	Word sets displayed on board, choral	✓	Low (teacher-led choral	✓ (letter-sound correspondence but lacks

	tations of /ə/		reading, drills		reading, repetition)	independent application)
B	Letter-sound correspondence of B, C, D, and F	✗	YouTube video on consonant sounds, group reading from "Radiant Way"	✗ (introduce /b/, /k/, /d/, and /f/ sounds and /ba/, /ka/, /da/, and /fa/)	Medium (group reading, but with errors)	✗ (mispronunciation affects letter sound accuracy and phoneme articulation)
C	Phoneme / ə / representations	✓	Listing words with specific sounds	✓	High (active feedback)	✓ (emphasizes phoneme articulation)
D	Vowel sounds (U, A, O)	✓	Sorting words by sounds, use of Tamil letters for sound explanation (in Tamil medium classroom)	Mixed (introduced accurate sounds for U, and A while inaccurate sound for O)	Medium (sorting activity)	✓ (partial alignment with phoneme articulation but lacks focus on blending)
E	Reading comprehension and vocabulary	NA	Vocabulary and comprehension tasks	Not focused on letter-sound correspondence	Medium (vocabulary focus)	✗ (focused on comprehension only)
F	Phonemic representation of vowels	✗	Singing songs with action verbs	✗ (introduce inaccurate sounds for vowels)	Low (confusing instructions)	✗ (inaccurate vowel sounds limit phoneme articulation focus)
G	Reading comprehension	NA	Comprehension exercises	Not focused on letter-sound correspondence	Medium (vocabulary focus)	✗ (focused on comprehension only)
H	Consonant sounds (B, C, D, F)	✗	Drills, sound blending exercises	✗ (introduce /b/, /k/ sounds and /ba/, /ka/)	Low (incorrect blending was done when practising reading based on phonics)	✗ (inaccurate sound blending)

The findings of this study revealed that ESL primary teachers in the Embilipitiya educational zone have an incomplete understanding of phonics instruction. Many teachers have misunderstood phonics instruction as phonemic awareness, interpreting phonics instructions merely as teaching sounds, rather than recognising phonics as the relationship between sounds

and the corresponding letters. Moreover, despite the lack of knowledge of phonology, all teachers expressed a positive attitude towards the importance of phonics for reading development. This circumstance was common in the Jordan ESL context according to Allouh's study (2021). The classroom practices depicted that phonics instruction is sporadic and largely textbook-oriented. Students merely repeat after the teacher reads the text rather than reading independently using phonics rules. Similar practices were noted in studies by Zhang and Kang (2021) and Ly and Thuy (2021), where students primarily repeated after teachers, with limited application of phonics rules. Exceptions were noted where some teachers integrated the sounds of students' mother tongue into their phonics instruction, such as Tamil, but overall, the use of phonics strategies remains infrequent in Sri Lankan ESL primary classrooms.

4. Conclusion

This research explored ESL primary teachers' understanding and the methods they use to give phonics instructions in the ESL primary classroom when teaching reading. According to the study, five major findings could be identified. 1) Most of the teachers do not have a clear understanding of phonics instructions. 2) The teachers have positive attitudes towards using phonics instructions, especially as a method that can be utilised to improve younger learners' (primary students') reading skills. 3) Teachers conducted reading lessons glueing to the government textbooks. Thus, teachers practice phoneme identification, phoneme blending, and phoneme categorisation activities that are given in the textbook. 4) Only a few teachers manipulate teaching materials such as decodable reading books, YouTube videos on phonics rhymes, and approaches such as teaching sounds of the target language through the sounds of the mother tongue, to improve students' knowledge of letter-sound correspondence. 5) The most frequent method of teaching reading is drilling. Therefore, phonics-based independent loud reading could hardly be observable in primary classrooms. The aforementioned findings are effective in designing the English curriculum for primary grades and teaching practitioners. In future, a comparative study can be conducted to examine the use of phonics-based reading practices in the ESL primary classroom in government and private school contexts in Sri Lanka.

5. Keywords

ESL primary education, phonics instruction, reading practice, teacher understanding

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IRSSSH 2024

International Research Symposium on Social Sciences and Humanities

Track 8
Tourism and Hospitality Management

Sustainable Practices in Global Tourism and Hospitality



A Study on Foreign Traveler's Satisfaction on Domestic Mode of Transport in Sri Lanka: A Case Study on Galle District

H.M.R.P.Wijerathna[1] and D.R.P.Upananda[2]

[1] *The Open university of Sri Lanka, Kandy regional Centre.*

[2] *The Open university of Sri Lanka, Nawala, Nugegoda.*

1. Introduction

Galle district is in the southern province of Sri Lanka. Yearly, many visitors come to Galle to visit the area because of the golden beaches, Galle Dutch port, world heritage Sinharaja rain forest, Rumassala etc. one of marvelous places where can get an experience of five kinds of roadway systems in one place is in the Galle district area. Therefore, this investigation was launched to inquire about the foreign traveler's view of the existing transport system in Galle.

The main problem of this study is the foreigner's satisfaction with domestic transportation mode in Sri Lanka. Cost, comfort, safety, ease of view scenes, and speed, what are the performance of these factors affecting the satisfaction of different traffic mode? What is the difference in tourists' satisfaction with different modes of transportation such as bicycle, bus, train, budget car three wheels are the specific question of the study. The main objective of this research was, to find out the foreigner's satisfaction with domestic transportation mode in Sri Lanka. The specific sub objectives of the study were to investigate the main factors influencing foreigner's satisfaction with domestic transportation modes in Sri Lanka, the other factors affecting that satisfaction, the new trends, and the problems in Sri Lankan domestic transportation modes.

2. Materials and Methods

Used both qualitative and quantitative methods for this research. The number of visitors to Galle town deference from time to time. Therefore, it is not possible to formulate a defined sampling frame. So, it has been used as a non-probability sampling method, for the convenience of this study. Galle town was used as the study area. All foreign tourists to the city of Galle can be named as the population of this task. Among them, some foreign tourists were selected as the sample of the study.

Basically, questionnaires were used to collect the data using convenient sampling methods. Some information was collected from the discussion and emotions of the tourists and seventeen questions were presented to tourists to respond. Their respondents used figures, chart, compare, explanations to data present and data analysis. Out of the questionnaire that were distributed to the respondents and the information presented here includes ages and gender of the responders. According to the statistics, 30 responders were male and 20 were female tourists. Therefore, most of them were male the percentage it was 60%. They were asked about their monthly gross salary and the number of times they have been to Sri Lanka to understand the experiences for the responders in Sri Lanka's travel and their ability to spend.

3. Result and Discussion

To identify their likes and dislikes about the popular transport mode in Sri Lanka, asked about opinions on cost, speed, safety, sightseeing of this mode and about the services. As the transport mode, it has used Buses, bicycles. rain, three-wheelers and Cars. According to the statistics 30 tourists have responded about bicycles and it shows 26.6% of tourists are strongly dissatisfied with the cost of the bicycle and 13.3% are dissatisfied with that. 20% of tourists have responded as neutral about the cost of and 26.6% have responded as satisfied. However, 13.3% of tourists

have responded as strongly satisfied with cost of bicycle transportation mode in Sri Lanka. According to opinion of the safety of bicycles nobody is strong dissatisfied and dissatisfied safety of bicycle in Sri Lanka used for travelling. 16.6% of tourists are neutral about that and most tourists are satisfied with safety and the second majority strongly satisfied with the safety of bicycles. That percentage is 50%. Most tourists were satisfied with the speed of the bicycle 33.3% of tourists were strongly satisfied and 6.6% dissatisfied with that. Nobody was strongly dissatisfied and 40% of tourists are neutral about the fast of bicycles as a transportation mode. When they responded to the comfort of a bicycle 40% of them were neutral about that and 20% of sample tourists responded very dissatisfied and satisfied. However, 10% of them are dissatisfied and strongly dissatisfied with the comfort of the bicycles.

50% of tourists are strongly satisfied with scene viewing when using a bicycle as the transportation mode. 10% were neutral and dissatisfied about that and 30% of tourists were satisfied with scenes viewing with travelling by bicycles.25 tourists have responded about the buses and 28% of tourists are neutral about the cost of buses and 8% of them strongly dissatisfied and 32% satisfied about cost of buses. 20% of them are dissatisfied and 12% are strong satisfied about the cost of buses as a transportation mode of Sri Lanka. Regarding the safety of buses, 20% of tourists are dissatisfied with it and 32% of tourists are satisfied with the safety of buses. 24% of tourists are strong strongly dissatisfied with the safety of buses and 24% are satisfied. But nobody neutral about safety of Sri Lankan buses as a transportation mode.

There are 20% neutral answers to the speed of buses 44% dissatisfied with the speed 8% of tourists are strongly dissatisfied and 32% of tourists are strongly satisfied with speeds of the buses The majority strongly dissatisfied with the comfort of Sri Lankan buses and no body strong satisfied with that. However, 20% of tourists responded as dissatisfied about that and another 20% are neutral and 8% satisfied about the comfort of Sri Lankan buses. 24% are satisfied with sightseeing and 28% of tourists are neutral with it. 20% and 28% are dissatisfied and strongly satisfied with sightseeing when using buses as the transportation mode.

Of the 50 tourists who answered the questionnaires, 35 never cars as their transportation mode in Sri Lanka. Therefore, happened to be limited to 15 people when concerned about their answers to the questionnaire. Most tourists have responded as strongly dissatisfied with the cost of cars and that is 53.3%. 26.6% of them are dissatisfied with the cost of cars. 6.6% are neutral, satisfied and satisfied with the cost of cars in Sri Lanka used for travelling. No one strongly dissatisfied about with the safety of cars and the majority neutral about that the minimum percentage belongs to the dissatisfied category and others belong to the satisfied and strongly satisfied about the safety of the cars in Sri Lanka used for fulfilling travelling purposes. 40% of tourists are strongly satisfied and satisfied with the speed of the cars and 20% are neutral about the speed of the cars. Nobody has strong dissatisfaction or dissatisfaction with the speed of cars. 33.3% of tourists were satisfied with the comfort of cars and no tourists were very dissatisfied with it. 20% of tourists are neutral and strongly satisfied with that and 26.6% of them belong to the dissatisfied category. Meanwhile, most of the percentage to strongly satisfied with sightseeing with cars and that percentage is 53.3%. 26.6% are satisfied with it and 20% are neutral. However, no belong any one to the strong dissatisfied or dissatisfied category with scenes viewing.

28 people responded with their ideas about cost, safety, fast, comfort, and sightseeing when they use three wheels. Regarding the cost of the three wheels, 21.4% of them were strongly dissatisfied and 28.57% were dissatisfied with the cost and no body strong satisfied. 32.1% of tourists were neutral and 17.8% were satisfied with the cost of three wheels. According to

opinion safety of three wheels 25% of tourists strongly dissatisfied about that and 21.42% strongly satisfied about that. However, 21.42% of tourists were dissatisfied, 14.2% neutral and 17.85% satisfied with the safety of the three wheels. 21.4% of tourists neutral and 32.14% satisfied about the speed of three wheels and nobody strong dissatisfied about speed.21.4% of tourists dissatisfied and 25% strong satisfied fast of three wheels. Meanwhile 25% of tourists were neutral and 28.57% satisfied and 32.14% strong satisfied about sightseeing of three wheels. Nobody was strongly dissatisfied and 14.28% were dissatisfied with sightseeing.

When concerned about the responses of trains no body strong dissatisfied or dissatisfied with the cost of trains. 25% of tourists were neutral about that and 42.85% were satisfied with that. 32.14% of them strong satisfied about cost of the train in Sri Lanka. 21.42% were dissatisfied with safety and 25% of them neutral and satisfied with safety. 21.42% strong satisfied and 7.14% strongly dissatisfied about safety as a transportation mode train in Sri Lanka.

They have answered privet transportation is their favorite transportation mode and 60% of tourists engage with it. 40% of tourists answered that public transportation is their favorite and the main reason for the popularity of privet transportation and comfort. According to respondents of the tourists 30% of them have responded that lack of parking facilities was the problem they had to face and 40% replied that traffic jams are the main problem they have to face in destinations. Cash charger is another response and that percentage is 30%. Have to walk too far and the other was the reply of 10% of tourists.

15 tourists have used online transportation mode in Sri Lanka and 08 of them have used Tuk Tuk and the other 07 tourists have used pick me vehicles as their online transportation mode. 24 tourists neutral about the road network in Sri Lanka and 12 tourists were satisfied with it. For what should change of Sri Lankan transportation, according to their experiences, 20% has responded as about price control and has said as should be modernized by 30%. 20% have replied as should be speed and 30% of tourists have not any idea about that.

Meanwhile the overall positive satisfaction about Sri Lankan transportation mode is 60% and overall negative satisfaction is 40% about Sri Lankan transportation mode.

4. Conclusion

In the field of transportation, not only the transport mode but also the road network is very important. Therefore, when studying the transportation industry in Sri Lanka, the road network was identified as one of the factors that influences the foreigner's satisfaction. So, what is their view on Sri Lanka's Road network? Were asked about their satisfaction in identifying weather.

Most of the tourists who have traveled in Sri Lanka prefer to travel with the privet transportation sector. The most important factor in choosing a mode of transport after a tourist arrives to Sri Lanka is the possibility of viewing. As such they tend to choose a transport mode that can be early viewed around. Also, another thing is that they're concerned about fast and comfortable comforters. Also, if those things are good that is, comfort and scenes scene viewing the cost of transport is not very strong.

One of the main conclusions of this study was that the privet transport mode Favors a traveler in Sri Lanka, more than public transport. here, the cause was considered the comfort factor and hence the need to focus more on the amenities of the public transport sector in Sri Lanka should be given more importance. It should be made compulsory to display the emergency numbers of the responsible agencies, law enforcement agencies, vehicle registration certificates and the amount relative to the distance. Also, a public place should be established in every city for complaints of financial irregularities in the services of railway, Buses, and other modes.

Technology development can be introduced as another change that the transport class needs to develop in Sri Lanka's tourism industry. The introduction of online applications can make it easy to reach the destinations to the traveler. It should be able to select its preferred travel mode and know its prices before purchasing. Not only that, possible to introduce special budget taxi services, but a more reliable and safer system can be developed by employing female drivers. Similarly, the public transport sector will be able to achieve greater growth by providing facilities for tourists traveling with children. In addition, developing laws and regulations, safety, comfort, and providing reliable friendly service with modern technology are other suggestions to for developing the Sri Lankan transportation modes that are used for the tourism industry. In addition, these all things should apply to the transportation section under the sustainable development conditions to a sustainable tourism development.

5. Keywords

Galle, Road network, Tourism, Transport mode, Sri Lanka,

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Opportunities and Challenges of Post-War Cultural Tourism in Northern Sri Lanka: A Case Study of Jaffna Peninsula

K.M.G. Arjuna Manage

Postgraduate Research Scholar, Department of Archaeology, University of Kerala, India.
geeth.a.manage@gmail.com

1. Introduction

Sri Lanka, known as the "Pearl of the Indian Ocean," has emerged as a top travel destination due to its diverse landscapes, rich cultural history, and natural beauty. Following the end of a three-decade civil war in 2009, the country's tourism industry has experienced significant growth, contributing to its economic revival. The Northern Province, particularly the Jaffna Peninsula, has become a focal point for post-war cultural tourism. With attractions like the Jaffna Fort (built in 1618), Nallur's Great Pagoda-like Kovil, and the historic Jaffna Library, the region holds great potential for tourism development. However, challenges such as reconciliation, cultural sensitivity, and infrastructure development remain. This study aims to explore the potential and constraints of post-war cultural tourism in Jaffna, focusing on how sustainable tourism can provide local economic benefits while fostering inclusiveness. Key objectives include identifying cultural and natural attractions in Jaffna, evaluating recent infrastructure improvements, addressing cultural sensitivity and community engagement, and offering recommendations for policymakers. These insights aim to balance tourism development with socio-economic sustainability, particularly in the context of post-conflict recovery and nation-building efforts.

2. Methodology

Utilizing stakeholder interviews, secondary data from the literature, and reports on tourism statistics this case study uses a qualitative research method. These stakeholders were local community leaders, government officials, tourism industry professionals, and visitors to the Jaffna Peninsula. The analysis of the market strategies, infrastructure developments, and government initiatives plays a vital role in the tourism growth in Jaffna. In particular, the report deals with cultural tourism as a generator of economic reactivation, and community involvement and then comments on infrastructure improvements and professional training to improve domestic tourist experiences.

3. Limitation

The study faces certain limitations, including the relatively small sample size of stakeholders interviewed, which may not fully capture the diverse perspectives within the Jaffna Peninsula. Additionally, the evolving nature of post-war recovery in Jaffna means that the findings may not fully account for future developments or unforeseen challenges. The study's reliance on qualitative data also means that quantitative analysis, such as economic impact assessments, is limited.

4. Results And Discussion

4.1 Cultural Tourism Potential in Northern Sri Lanka

Cultural and heritage tourism in post-war Northern Sri Lanka holds significant potential due to its rich historical and cultural resources. Key attractions include Jaffna Fort, Nallur Kandaswamy Kovil, the rebuilt Jaffna Library, Kantharodai Ruins, and Delft Island, all offering unique insights into the region's history and culture (Jayawardena, 2013; Ranasinghe, 2015; Buultjens et al., 2016; Causevic & Lynch, 2013). These sites contribute to tourism's ability to stimulate local economies and promote community development (Farmaki et al., 2015). However, challenges remain, particularly regarding cultural sensitivity and community

involvement in tourism planning. It is essential to ensure that tourism benefits respect local traditions and support reconciliation between post-war communities. Ethical concerns also include avoiding the reinforcement of stereotypes and ensuring authentic experiences, with active community participation being crucial for sustainable and respectful tourism development (Soini Birkeland, 2014).

4.2 Opportunities for Cultural Tourism Development

Jaffna's rich cultural heritage, combined with significant infrastructure improvements, has fostered growth in cultural tourism. The opening of Jaffna International Airport has made it easier for tourists to visit, with direct flights from major cities boosting the region's accessibility and economic growth (Buultjens, Ratnayake, & Gnanapala, 2016). The airport's operation has been a key factor in increasing tourist numbers, allowing the local community to engage with new cultures (Jayawardena, 2013).

In addition, the rehabilitation of roadways has enhanced accessibility to key tourist sites like Jaffna Fort and Nallur Kandaswamy Kovil, further driving tourism. These infrastructure improvements highlight the government’s focus on tourism as an economic growth driver (Ranasinghe, 2015). Investments in hospitality, including hotels like Jetwing Jaffna, have also contributed to the region's popularity, with increased bookings reflecting growing demand (Farmaki et al., 2015).

Local authorities are promoting cultural heritage tourism, emphasizing sites like the restored Jaffna Public Library, a symbol of resilience and the region's literary heritage (Soini & Dessein, 2016). The rise of "experiential tourism" benefits both tourists and locals, as the community engages in preserving traditional practices and creating new business opportunities. Infrastructure development and a focus on cultural heritage are key to Jaffna’s sustainable tourism boom, positioning it as a significant cultural destination in Sri Lanka.

4.3 Challenges in Infrastructure and Professional Training

While Jaffna has made significant progress in developing as a cultural tourism hub, key challenges remain. Infrastructure development is a central issue. Although improvements like the Jaffna International Airport and road renovations have improved accessibility, continued investment is necessary to meet international standards for transportation, accommodation, and attractions (Buultjens, Ratnayake, & Gnanapala, 2016). Current accommodation options, for instance, need upgrading to attract higher-end international tourists (Farmaki, Altinay, Botterill, & Hilke, 2015).

Another major challenge is the lack of skilled workers in the tourism sector. High-quality, culturally sensitive hospitality services are essential, particularly in a post-conflict region like Jaffna, where cultural factors are important (Soini & Dessein, 2016). Despite the early stages of Jaffna's tourism industry, the lack of proper training for hospitality staff is a critical issue (Causevic & Lynch, 2013). Training programs focused on language skills, customer service, and operational standards could improve the overall tourist experience (Jayawardena, 2013).

To address these challenges, local stakeholders should prioritize human resource development and implement training programs in collaboration with tourism and education organizations. This would not only enhance the local workforce’s capabilities but also foster pride and cultural awareness among the community. Additionally, offering workshops or apprenticeships in traditional arts could help preserve cultural heritage while allowing artisans to engage meaningfully with tourists. Ultimately, improving infrastructure and professional training is key to making Jaffna a sustainable cultural tourism destination in post-war recovery.

4.4 Cultural Sensitivity in a Post-Conflict Setting

Cultural sensitivity is essential in Jaffna's post-conflict context, as its cultural identity has been deeply affected by the civil war (Buultjens, Ratnayake, & Gnanapala, 2016). Misguided tourism can exacerbate conflicts and misrepresent local culture, leading to difficulties and fewer visitors (Causevic & Lynch, 2013). To foster a positive atmosphere, tourism strategies should educate visitors on the significance of sites like the Jaffna Fort and Nallur Kandaswamy Kovil (Farmaki et al., 2015). Building trust through cultural exchange programs and guided tours can promote mutual respect and understanding (Soini & Dessein, 2016). Involving local stakeholders in tourism planning ensures initiatives align with the community's values, enhancing cultural sensitivity (Jayawardena, 2013). Sustainable tourism practices that respect culture and the environment are crucial for preserving Jaffna's authenticity and supporting reconciliation (Soini & Birkeland, 2014).

4.5 The Role of Community Involvement

Community engagement is a must to achieve sustainable development besides cultural tourism in Jaffna. Giving power to the local communities to actively participate in tourism planning and operation can be beneficial to the economic aspect as well as preserving cultural heritage. Study shows that the residents who play a significant role in tourism in those regions are better able to fulfill the visitors' needs and preferences, which ultimately leads to improved visitor satisfaction and also repeat business. Involving the locals in tourism initiatives not only helps them earn income, and but makes them feel the ownership among the population, increasing the chances of them being supporters of the tourism efforts. In Jaffna, successful cases may be community-led heritage tours where locals tell their stories and traditions which in turn will make visitors feel like they are part of the community.

4.6 Marketing Strategies and Stakeholder Collaboration

Using different promotional techniques for tourism in Jaffna, to make it more artful, is what needs to be done first. The targeted marketing of Jaffna which demonstrates its rich historical and cultural assets plays a key role enlightening tourist. This implies the creation of a comprehensive narrative that tells the story of the people of the area, their customs, the holidays, and the food, using different mediums, including social media and tourism fairs. Besides, the coordinated efforts of government bodies, local inhabitants, and the private sector are the key to sustainable and fair tourism development. Such collaboration can help stakeholders come up with a well-rounded brand image that ensures economic growth while preserving cultural heritage. This is important for both domestic and international tourists. Stakeholders coordinating their activities effectively may involve joint promotional campaigns for Jaffna's festivals or cooperation between local artisans promoting traditional crafts to tourists.

5. Conclusion

This study explores the potential of cultural and heritage tourism in post-war Jaffna, focusing on sustainability and community participation. Jaffna’s rich heritage, including sites like the Dutch Fort and Nallur Hindu Kovil, positions it as an emerging cultural tourism hub. The research emphasizes the importance of community involvement in preserving authenticity and supporting local livelihoods. Effective stakeholder collaboration is crucial for balancing economic growth and cultural preservation. Additionally, cultural sensitivity is vital in a post-conflict setting, with educational programs and community engagement fostering mutual understanding. Challenges include infrastructure development, professional training, and equitable economic distribution. The study advocates for sustainable practices that respect cultural heritage and environmental concerns, suggesting the creation of cultural villages to empower communities. Future research should examine the socio-cultural and economic impacts of tourism, ensuring that tourism strategies contribute to both local development and cultural well-being. Sustainable tourism requires continuous efforts in managing cultural, environmental, and community aspects.

6. Keywords

Challenges, Jaffna peninsula, Opportunities, Post-war cultural Tourism

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The Tourist Interest in Museum: Special Reference to the Colombo National Museum in Sri Lanka

T.D. Suresh Gayan Priyangana

Department of Examinations, Colombo, Sri Lanka. sureshpriyangana1986@gmail.com

1. Introduction

Cultural tourism has emerged as a growing sector of the Sri Lankan tourism industry. The Colombo National Museum plays an important role in cultural tourism in Sri Lanka. A National Museum has the potential to offer an authentic experience about the travel destination at a glance. Colombo National Museum, being located in the commercial hub of the island, is a determinant attraction in both cultural and heritage tourism aspects. The National Museum of Colombo was established in January 1877 by Sir William Henry Gregory, the then British Governor of Ceylon. (Samarathunaga, 2018)

Historical perspectives and the prestige artifacts denoted at the museum, attract thousands of visitors per annum. But it is a smaller amount than the total number of tourists visiting Sri Lanka. The National Museum of Colombo is a cultural tourism tool that can generate a lot of foreign income. A large number of tourists visit Sri Lanka every year. Some tourists visit the Colombo National Museum, but not everyone is interested. It can be identified according to the numerical data in the table below. (Sulkaisi, 2019)

Table 1. The total number of tourists arriving in Sri Lanka and Foreign Visitors visiting the Colombo National Museum.

Year	The total number of foreign visitors to the museum	Total number of tourists
2010	22061	654476
2011	31096	855975
2012	37305	1005605
2013	44751	1274593
2014	57604	1527153
2015	56387	1798380
2016	59982	2050832
2017	68107	2116407
2018	85551	2333796
2019	64877	1913702
2020	16751	507704
2021	117	194495
2022	5725	719978
2023	32645	1487303

(Central Bank, 2023)

According to the table above, it is clear that the percentage of tourists visiting Colombo National Museum is low. 1,487,303 arrived in year 2023 out of which only 32,645 of tourists arrived at the Colombo National Museum. The research problem is the lack of interest among the tourist to visit the Colombo National Museum.

Therefore, was this research aimed to solve the problem of lack of interest among tourists to visit the Colombo National Museum. This research identified many reasons for the lack of interest among tourists to visit the Colombo National Museum. Also, the strategies that can be used to motivate tourists to visit the Colombo National Museum were identified through this research.

2. Materials and Method

For a study on "Tourist Interest in Museums," several research methodologies can be employed to gather both qualitative and quantitative data. A qualitative research method was used in conducting this study. Using the interview method and observation method, the data required for the research was collected. The sample of this study will number of six staff members in Colombo National Museum. There are two museum officers, two education promotion officers, and two conservation officers. In-depth interviews with museum staff members can provide insight into their personal experiences, motivations for visiting, and emotional responses to exhibits. Also, by analyzing the data, the research problem was solved and the research objectives were achieved.

3. Result and Discussion

If there is a lack of interest among tourists to visit the Colombo National Museum, it's important to identify the possible reasons for this and take steps to address them. Here are some common factors that may contribute to a lack of tourist interest

- Lack of Awareness.
- Lack of Accessibility.
- Lack of Multilingual Information.
- Lack of Variety and Scope.
- Personal Preferences.
- Competition from Other Attractions.
- Lack of Educational Programs & Tourism Promotion programme.
- Lack of Special Events and Exhibitions.

By addressing these factors, the Colombo National Museum can become more attractive to tourists and increase its visitor numbers. A strategic approach to marketing, accessibility, and visitor experience can help overcome the lack of interest among. (Weerasinghe, 2018)

Motivating tourists to visit the Colombo National Museum in Sri Lanka involves a combination of marketing, promotion, and providing a compelling visitor experience. Here are several strategies that can be used to encourage tourists to visit the museum:

1. Effective Marketing:
    - Develop a strong online presence through a user-friendly website and active social media accounts to provide information about the museum, its exhibits, and events.
    - Collaborate with travel agencies and tour operators to include the museum in their tour packages and Create enticing promotional materials, such as brochures, flyers, and videos that showcase the museum's collections and history.
2. Diverse Exhibits:
    - Ensure the museum offers a diverse range of exhibits, including historical artifacts, art, cultural displays, and interactive installations to cater to a broad audience.
    - Rotate exhibits periodically to keep the museum fresh and encourage return visits.
3. Guided Tours:
    - Provide informative guided tours led by knowledgeable guides who can engage tourists by sharing interesting stories and facts about the exhibits.
    - Offer tours in multiple languages to cater to international visitors.

4. Cultural Events and Workshops:
    - Organize cultural events, workshops, and hands-on activities that allow tourists to actively participate and learn more about Sri Lankan culture and history.
5. Special Exhibitions:
    - Host temporary or special exhibitions featuring renowned artists, historical events, or unique themes to attract a wider audience.
6. Educational Programs:
    - Develop educational programs for schools, universities, and other institutions to encourage field trips and learning experiences.
7. Accessibility and Amenities:
    - Ensure the museum is easily accessible with clear signage, ample parking, and public transportation options, provide amenities such as a gift shop, cafe, and rest areas to enhance the overall visitor experience.
8. Collaborations and Partnerships:
    - Collaborate with other local tourist attractions, hotels, and businesses to create joint promotions and packages that include visits to the museum.
    - Partner with universities and research institutions to promote the museum as a center for academic exploration.
9. Positive Reviews and Testimonials:
    - Encourage satisfied visitors to leave positive reviews on travel websites, social media platforms, and other review channels to boost the museum's online reputation.
10. Engage the Local Community:
    - Involve the local community by hosting events, exhibitions, or workshops that highlight the museum's significance within the community.
11. Cultural Exchange Programs:
    - Collaborate with international cultural exchange programs and organizations to promote the museum to a global audience.
12. Accessibility for People with Special Needs:
    - Ensure that the museum is accessible to people with disabilities by providing facilities like ramps, elevators, and Braille signage.

By implementing these strategies and continuously engaging with visitors, the Colombo National Museum can effectively motivate tourists to explore the rich cultural heritage and history of Sri Lanka.

4. Conclusion

Museums are some of the most significant attractions for tourists worldwide. They not only serve as repositories of history, art, and culture but also provide immersive experiences that help visitors connect with the past, appreciate the present, and engage with new ideas. The interest in museums among tourists can be attributed to several factors.

To improve the attraction of the Colombo National Museum, efforts could be made to enhance the visitor experience, update exhibits, provide multilingual information, and promote its unique features and collections. It's also important for visitors to have the right expectations and interests when visiting any museum, as each one offers a different perspective on history and culture.

The Colombo National Museum plays an important role in cultural tourism in Sri Lanka. It is

expected that if the tourists coming to visit Sri Lanka are motivated to visit the Colombo National Museum, a lot of income can be added to the Sri Lankan economy.

In summary, the scientific reasons for tourist interest in museums stem from a combination of intrinsic human drives—such as curiosity, emotional engagement, social connection, and the pursuit of knowledge. Museums are spaces that cater to these psychological, cognitive, and social needs, making them attractive destinations for tourists seeking enriching and memorable experiences.

5. Keywords

Cultural tourism, Colombo National Museum, Museum promotion, Promotion product

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ISSN 3051- 5629