Management Studies
Sabaragamuwa University of Sri Lanka

ICMR
2023

8th Interdisciplinary Conference of Management Researchers [ICMR 2023]

"Moving Beyond Conventional Wisdom for an Uncontrived Economy"

FULL PAPERS

Faculty of Management Studies
Sabaragamuwa University of Sri Lanka
Belihuloya | SRI LANKA

8th Interdisciplinary Conference of Management Researchers (ICMR 2023)

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Belihuloya, Sri Lanka

19th – 20th December 2023

PREFACE

Recognizing the importance of moving beyond conventional wisdom for an uncontrived economy, the 8th Interdisciplinary Conference of Management Researchers (ICMR 2023) was organized by the Faculty of Management Studies, Sabaragamuwa University of Sri Lanka. Two eminent Professors in Management related fields namely, Prof. Nick Ashill and Prof. N. Jayantha Dewasiri attended the conference as keynote speakers to share their insights under the theme of "Moving beyond conventional wisdom for an uncontrived economy". More than thirty peer-reviewed research papers were presented under six different tracks namely, Finance I, Finance II, General Management, Human Resources Management, Tourism and EcoBusiness Management and Marketing. This conference provided a great opportunity for the researchers, professionals, policymakers, and undergraduates to discuss and share their research findings relating to key global issues in the field of management while providing them with a platform to develop a global network in their disciplines.

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MESSAGE FROM THE VICE-CHANCELLOR

I am delighted to welcome you to the 8th Interdisciplinary Conference of Management Researchers (ICMR) - from 19th to 20th December 2023 at the Sabaragamuwa University of Sri Lanka under the theme of "Moving beyond conventional wisdom for an uncontrived economy."

Sabaragamuwa University of Sri Lanka is an emerging research university that promotes and facilitates research activities extensively among its staff and students. The initiation of the ICMR in 2016 by the Faculty of Management Studies has played a pivotal role in advancing these research endeavors.

I give my best wishes to all delegates, the Dean of the Faculty of Management Studies, and the organizing committee to make this event a grand success. I admire their commitment and congratulate them on the success of the conference.

I would appreciate all the sponsors for their efforts in encouraging academic research through their sponsorships.

Professor. (Dr.) M. Sunil Shantha
Vice-Chancellor
Sabaragamuwa University of Sri Lanka

MESSAGE FROM THE DEAN

I am delighted to send this message regarding the 8th Interdisciplinary Conference of Management Researchers (8th ICMR) organized by the Research and Publication Unit, Faculty of Management Studies (FMS) of the Sabaragamuwa University of Sri Lanka. The conference is being held in partnership with Emerald Publishing and focuses on the theme of "Moving Beyond Conventional Wisdom for an Uncontrived Economy." This theme is both timely and crucial for Sri Lanka and the world as a whole, especially in the post-pandemic era, where we have all faced challenges in terms of resilience and economic development. Sri Lanka, in particular, finds itself in a more vulnerable situation due to the prevailing economic and political crisis. The conference will provide an excellent platform for researchers, academicians, practitioners, industrialists, and policymakers to share ideas, collaborate, and cooperate in the fields of Management and Social Sciences. The Faculty of Management Studies has been accredited with an "A" grade by the Quality Assurance Council of the University Grants Commission of Sri Lanka for all its degree programmes.

As a state university that receives public funds, we are committed to maintaining academic excellence with the motto "Nurturing the Paragon of Virtues". Our faculty is dedicated to fostering a culture of excellent teaching and research and providing high-quality education in a serene and picturesque environment for our students and other stakeholders. We have identified our academic responsibilities by organizing the 8th ICMR, which aims to create a global platform for researchers from different fields to research and disseminate solutions to emerging issues and challenges.

I would like to extend a warm welcome and express my gratitude to all of our keynote speakers, distinguished guests, and academics participating virtually. Your contributions are highly valued and appreciated. I would also like to express my heartfelt thanks to all the researchers who have presented their excellent studies and valuable findings on this research platform. Furthermore, I would like to extend my deep appreciation to the conference chair, secretary, co-chairs, and other members of the organizing committee for their unwavering commitment to ensuring the success of this conference.

Professor. (Dr.) Athula Gnanapala
Dean- Faculty of Management Studies
Sabaragamuwa University of Sri Lanka

MESSAGE FROM THE CONFERENCE CHAIR: ICMR 2023

In an era characterized by global interconnectedness and knowledge-driven progress, research conferences have emerged as pivotal events for scholars, scientists, and experts to exchange ideas, collaborate on groundbreaking studies, and push the boundaries of human knowledge. The Interdisciplinary Conference of Management Researchers (ICMR), now in its 8th successful year, hosted by the Faculty of Management Studies at Sabaragamuwa University of Sri Lanka, stands as a prominent platform for intellectual discourse and innovation. This conference convenes esteemed researchers, scholars, and practitioners from around the world, fostering interdisciplinary collaborations and paving the way for significant advancements in the realm of management studies. The 8th ICMR, under the theme "Moving Beyond Conventional Wisdom for an Uncontrived Economy," encourages researchers and participants to explore innovative and unconventional ideas in the field of economics and management. It suggests a departure from traditional economic thinking and practices in favor of more organic and authentic approaches to shaping economic systems. The emphasis is on promoting creativity, exploration, and a departure from established norms to foster a more dynamic and uncontrived economic environment. Therefore, it delves into a diverse range of management-related topics, including Finance, Banking & Insurance, Business Management, Creativity & Innovation Management, Eco-business Management, Economics, Entrepreneurship and Small Business Management, Human Resource Management, Change Management, International Business and Global Sustainable Practices, Marketing Management, Supply Chain Management, and Tourism & Hospitality Management. This interdisciplinary conference will serve as a platform for fostering collaboration and encouraging the cross-pollination of ideas among scholars and practitioners. By transcending disciplinary boundaries, the Faculty of Management Studies at of Sabaragamuwa University aims to set an example for future conferences, inspiring researchers worldwide to embrace interdisciplinary approaches in their pursuit of cutting-edge knowledge in the field of management.

Professor. (Dr.) T.U.I. Peiris
Conference Chair - 8th ICMR
Professor in Finance
Faculty of Management Studies
Sabaragamuwa University of Sri Lanka

MESSAGE FROM THE CONFERENCE SECRETARY: ICMR 2023

On behalf of the organizing committee, I would like to welcome you to the 8th ICMR 2023 conference. This important academic conference has been held by the Faculty of Management Studies for the past seven years, and this year, we have come together to commemorate our eighth anniversary. It is a prestigious conference of scholars, researchers, and business leaders that could result in the development of new paradigms and has a significant influence on numerous economic sectors. Thank you for your response and the contributions, which span all significant areas of management and exploitation. The conference proceedings and the 8th ICMR 2023 Abstract Book will contain all papers submitted by the deadline.

I would like to thank every author for their amazing work, and the members of the scientific committee in particular for their skillful assessment of the many entries. A number of invited sessions have been planned to expand your knowledge, and on 20th December 2023, a special session on "Industrial forum" and "structural equation modeling" will take place. We are making every effort to ensure that your conference stay at Sabaragamuwa University in Belihuloya, Sri Lanka, is one of the most memorable and that you return from the 8th ICMR 2023 with a wealth of knowledge and as a proud presenter of research. I am delighted to see you, your loved ones, and your friends here once more. I hope you enjoy yourself to the fullest.

I am looking forward to hearing our distinguished keynote speakers: Professor Nick Ashill, School of Marketing and International Business, Victoria University of Wellington, New Zealand, and Prof. Dewasiri N. Jayantha, a professor attached to the Department of Accountancy and Finance, Sabaragamuwa University of Sri Lanka. Likewise, I want to extend greetings and gratitude to all invited chairs for their extraordinary preparation of the invited sessions, the adversary committee and other committee members in the 8th ICMR 2023. I am excited to see you at the 8th ICMR in 2023.

Dr. L.D. Kalyani
Conference Secretary - 8th ICMR
Senior Lecturer
Faculty of Management Studies
Sabaragamuwa University of Sri Lanka

KEYNOTE SPEECH OF PROFESSOR NICK ASHILL

I am delighted to deliver this keynote address at the 8th Interdisciplinary Conference of Management Researchers (ICMR) at the Sabaragamuwa University of Sri Lanka. In our world today, we stand on the precipice of unpredictable economic landscapes. The uncontrived economy challenges our traditional notions of stability and demands a new approach—one rooted in resilience. Today, I invite you on a journey to explore the essence of resilience and the indispensable role it plays in navigating the uncertainties of our times. The title of my keynote is "Absorb, Adapt and Transform: Developing Resilience Capabilities in an Uncontrived Economy".

Imagine a world where change is the only constant, where economic shifts are swift and unforeseeable. This is the world we find ourselves in—an uncontrived economy that demands adaptability and fortitude. Yet, within this turmoil lies an opportunity to thrive, not just survive. Since the millennium, economies have faced disruptions and crises of increasing frequency and severity. Russia's invasion of Ukraine and the conflict between Israel and Hamas have precipitated a humanitarian catastrophe with far-reaching social and economic consequences. The economic repercussions of rising costs of energy and food are also intensifying across the globe, with many economies still recovering from the COVID-19 pandemic. At the same time, we are witnessing profound technological disruption driven by artificial intelligence and machine learning. All these disruptions are taking place against the backdrop of an ever-present climate crisis, whose effective mitigation will require a global transition to a low-carbon economy. The recent decisions taken at the COP28 summit in Dubai suggest the human displacement and economic costs associated with climate change will become disruptors of historic proportions in their own right.

The impact of each of these disruptions cannot be studied in isolation. We live in an era which is increasingly defined by the interplay of many disruptions with their origins and consequences. So, how should organizations and institutions react and respond to these disruptions? Resilience describes an ability to deal with adversity, withstand shocks, and continuously adapt and accelerate as disruptions and crises arise over time (Raetz et al., 2022). Continuously adapting and accelerating as disruptions occur is very important and highlights that recovery alone is not an adequate goal. Truly resilient organizations not only bounce back but also thrive.

McKinsey research shows that organizations evaluated as more resilient generated greater shareholder value than less resilient peers across the entire life cycle of the major economic shocks of the past two decades (Brende and Sternfels, 2022).   Their study of the performance of 1500 global companies during the financial crisis of 2008-2010 revealed that approximately 20 percent of organizations across numerous industry sectors emerged from the downturn ahead of the rest. But more importantly, these organizations converted this small advantage into clearly superior market and financial performance against their peers for the next 10 years. Research evidence does not support the argument that superior performance resulted from long entrenched advantages. The McKinsey research showed that the resilient organizations had not been market leaders before the disruption, and most did not have preexisting businesses that the disruption advantaged. What the 20 percent did have was an ability to react rapidly, early, and decisively to the disruption (Brende and Sternfels, 2022). Through the disruption of the COVID-19 pandemic, resilient organizations also performed better than non-resilient organizations. Another McKinsey study reported by Brende and Sternfels (2022) found that resilient organizations generated a 10 percent higher shareholder return during the economic downturn of Q4 2019 to Q2 2020 and during the period of economic recovery (Q2 2020–Q3 2021), the differential accelerated to a staggering 50 percent. These findings suggest that resilient organizations could adapt more flexibly in the economic slump and could pivot more rapidly to meet the resurgence in demand post pandemic.

Resilience can be studied at different levels of analysis (Galy et al., 2023). In the management and psychology literature, the concept of resilience at the organizational level has been studied in a wide variety of fields, including organizational psychology (Powley, 2009), supply chain management (Sheffi and Rice, 2005), strategic management (Annarelli and Nonino, 2016), and services marketing (Bolton, 2020; Sok et al., 2021). In all these fields, resilience is related to the capability and ability of an organization and the individual to return to a stable state (which may be a new state of normality) after a disruption. According to dynamic capability theory, organizations need to respond quickly to turbulence and discontinuities to sustain sources of competitive advantage (Teece et al., 1997). The reconfiguration and/or transformation of competencies is a critical capability for organizational adaptation during environmental change.

At the individual level, resilience refers to an individual's ability to adapt effectively and restore equilibrium in the face of severe adversity (Cooke et al., 2019; Galy et al., 2023; Raetze et al., 2021). For example, it is widely acknowledged that frontline employees (FLEs) or service workers play a critical

role in delivering exceptional service and customer retention (Jha et al., 2017). However, they experience external and internal pressures daily, including discerning customers' service excellence demands such as customer incivility (Al-Hawari et al., 2020) and pressures from management, including performance requirements and uncivil supervision (Han, Bonn and Cho, 2016). Not surprisingly, FLEs often suffer from work-related stress. According to the conservation of resources (COR) theory (Hobfoll, 1989), resilience represents a fundamental psychological resource that can facilitate an individual's ability to overcome work related challenges and perform at a higher level (Good et al., 2023). The resources, individual, relational and organizational, available to FLEs represent the primary building blocks of resilience.

How can organizations arrive at a resilient stance to better anticipate change, withstand disruptions, and accelerate into the next reality? Shepherd and Williams (2023) suggest that organizational resilience is grounded in three key actions: prepare, perceive, and propel. Preparing is about investing ahead of disruptions to reduce the magnitude and speed of the impact. This means designing flexibility in products and processes, investing in digital transformation, building buffers, and strengthening supply chain networks. Perceiving is about detecting a disruption quickly and working out an appropriate response. Propelling characterizes the ability to move quickly, ensuring an effective response early in the disruption and pivoting to accelerate out of the disruption faster than other peer organizations. To summarize, organizational resilience is essential for long-term success in an uncontrived economy. Those organizations that can adapt and transform rapidly in the face of uncertainty and change will become market leaders. It is imperative that organizations support agile concepts, empower their teams, encourage adaptive leaders, and invest in talent and corporate culture to build resilience capabilities.

Professor. Nick Ashill
Professor in Marketing
Victoria University of Wellington
New Zealand

KEYNOTE SPEECH OF PROFESSOR N. JAYANTHA DEWASIRI

It is honoured to address you as the keynote speaker at the 8th Interdisciplinary Conference of Management Researchers (ICMR 2023), hosted by the Faculty of Management Studies at Sabaragamuwa University of Sri Lanka. The robust response from domestic and international submissions to the call for papers attests to the enthusiasm surrounding this conference's theme. Today, I am delighted to engage with you on a critical topic that resonates with the conference's theme: "Moving Beyond Conventional Wisdom in Management Research through Innovations."

Conventional wisdom, derived from past experiences or prevalent opinions, often shapes our understanding of management research. However, challenging these norms is paramount for progress. For instance, while some argue that paradigmatic differences hinder mixing research methods, pragmatists believe in an overarching paradigm, enabling innovative approaches in management-related research. Hence, it is still possible to make innovations in management-related research challenging traditional wisdom. Innovations in management research involve several key steps, including staying up-to-date with the latest research. There are several ways to make innovations in management-related research, some of which include:

•Collaborate with experts from other fields: Management-related research often involves a range of disciplines, from psychology and neuroscience to sociology and management. Collaborating with experts from different fields can help to generate new insights and approaches to studying management behaviour and cognition.

•Use new research methods and technologies: Most management-related issues are abstract concepts, making them difficult to define and study. Hence, it is suggested that further research methods and technologies, such as triangulation, design thinking, AI integration, and longitudinal studies, be applied as they provide different ways to investigate a particular problem in management-related research. This can involve using new data analysis techniques, experimenting with new study designs, or new technologies such as virtual reality or brain imaging. Technology catalyses advancing research methodologies, enabling more profound insights and comprehensive analysis.

•Focus on diversity and inclusivity: Management-related research should strive to be inclusive and representative of diverse populations. It means considering race, ethnicity, gender, sexuality, and socioeconomic status in research design and analysis. By taking an inclusive approach, researchers can generate new insights into how human behaviour and cognition vary across different populations.

•Prioritize ethical considerations: Management-related research can significantly impact people's lives, so it's essential to prioritize ethical considerations in all aspects of the research process. This includes obtaining informed consent from study participants, ensuring participant safety and privacy, and avoiding research practices that could harm or exploit vulnerable populations.

Overall, making innovations in management-related research requires a combination of curiosity, creativity, and attention to detail, as well as a commitment to staying current with the latest research and using innovative approaches and technologies to tackle complex questions. I urge you to embrace innovation in your research endeavours, challenging the status quo and striving for groundbreaking discoveries.

Last, I congratulate all the paper presenters and the conference team for a triumphant accomplishment. The delegates will undoubtedly keep fond recollections of the conference with them.
Warm regards,

Professor. N. Jayantha Dewasiri
Professor in Finance
Faculty of Management Studies
Sabaragamuwa University of Sri Lanka

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TRACK I - FINANCE I

IMPACT OF INTERNAL CONTROL SYSTEMS ON FINANCIAL PERFORMANCE OF LISTED COMPANIES IN SRI LANKA

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Abstract

Contemporary Sri Lankan companies confront various challenges in the business environment, such as technology advancement, global competition, public policies and regulations, etc. Accordingly, business organizations are required to implement Internal Control Systems (ICS) that provide effective solutions to address these complex business challenges that arise in a highly competitive and challenging environment. Thus, in terms of listed companies in Sri Lanka, the study *initially* assessed the level of the Internal Control Systems. S*econdly*, it examined the impact of the Internal Control Systems on financial performance using the COSO Model. The study followed a deductive research approach and a sample of 165 companies derived from the Sri Lankan companies listed in the Colombo Stocks Exchange based on a stratified systematic sampling technique. Primary data was collected through a self-administered questionnaire. One sample t-test was conducted to assess the level of the internal control system. Then, Multiple regression analysis was used to examine the impact of Internal Control Systems on financial performance. Findings indicated that the firms maintain effective Internal Control Systems within the organizations since there is a significant mean difference of 1.158 (test value of 3) with a mean value of 4.158 (out of 5) on an overall basis. Specifically, Internal Control Systems are effective in Control Environment, Control Activities, Risk Assessment, Information and Communication, and Monitoring Activities. Interestingly, as per the correlation analysis, dimensions of Internal Control Systems were positively correlated with financial performance. However, multiple regression analysis indicated that control environment, information and communication, and monitoring have a significant impact. In contrast, control activities and risk assessment displayed an insignificant impact on financial performance since Sri Lankan companies mostly focus on the overall internal control system rather than on specific elements of ICS. These findings suggested extensive policy implications for companies in implementing Internal Control Systems.

Keywords: COSO model, financial performance, internal control systems, Sri Lankan listed company.

1. Introduction

Organizations have to face different types of difficulties when achieving organizational objectives due to globalization and modern technologies. Internal Control System (ICS) is considered one of the internal factors providing directions to an organization. ICS is defined as the set of rules and procedures that help ensure the integrity of financial and accounting information, promote accountability, and prevent fraud (Kenton, 2021). According to Ishaku et al. (2020), ICS is the human nervous system that conducts various organizational activities. Moreover, Muhunyo (2018) stated that the completeness and accuracy of accounting records can be achieved by placing a proper internal control system.

When looking at the organizational context, an increasing number of business failures and challenges related to fraud will automatically encourage organizations to give more attention to their ICSs (Ng'Etich, 2017). Therefore, organizations have to pay attention to improving the quality of ICSs because an efficient ICS generates good business (Muhunyo & Jagongo 2018).

The research is intended to establish the impact of the internal control systems on the financial performance of an organization. Therefore, the findings of the study will help to identify the effectiveness as well as improvements within the ICSs and it is beneficial to management and other related parties.

2. Research Problem

The increasing number of business entities has encouraged the use of ICSs, ensuring businesses are conducted efficiently with adherence to internal policies. Moreover, if a proper ICS is in place, the completeness and accuracy of accounting records can only be achieved (Muhunyo & Jagongo, 2018). Richard et al. (2009) state that organizational performance can be measured using financial performance, product market performance, and shareholder return. Therefore, financial performance is essential to the organization and can be achieved through effective ICSs. Adequately designed and efficient ICSs give a higher financial performance to an organization (Ibrahim et al., 2017). Accordingly, listed companies on the Colombo Stock Exchange need to maintain a good ICS to enhance their financial performance. When considering the Sri Lankan context, companies listed in the Colombo Stock Exchange are significantly impacted by the efficiency of the financial market. The ICS is one of the significant factors that deals with the company's performance. Subramaniam (2008) stated that a good ICS prevents errors and fraud by monitoring the organizational and financial reporting processes and examining whether the entity complies with laws and regulations.

As an essential corporate governance mechanism, there were many studies conducted in developed countries regarding the ICS and financial performance, such as Germany (Brown, 2008) and the United Kingdom (Alzeban, 2020). When looking at the Sri Lankan context, as a developing country, there is a dearth of studies focused on this area and a limited number of studies conducted with the ICSs and financial performance. Existing studies are also based on specific areas or specific firms.

For example, Muraleetharan (2011) studied the impact of ICSs on the financial performance of public and private listed companies in the Jaffna district. However, a dearth of studies is conducted based on listed companies in Sri Lanka. Thus, the study focused on the impact of the ICS on the financial performance of the listed companies in CSE.

When considering developing countries, few studies have focused on the ICS, and organizations focus less on the ICSs (Jayasena et al., 2021). It is interesting to highlight those existing studies mostly focused on agency theory (Muraleetharan, 2011; Athurupana, 2019; Nzabandora, 2013; Hamour et al., 2021). However, the study was conducted based on multiple theories (i.e., Agency theory, Contingency theory and Reliability theory). On the other hand, empirically, there is a dearth of recent research conducted based on the impact of internal control components as a whole and separately on financial performance in Sri Lanka (Madhushani and Jayasiri,2021). For example, Muraleetharan (2011) studied the impact of ICSs on the financial performance of public and private listed companies in the Jaffna district. In the Sri Lankan context, companies listed in CSE play a crucial role in the financial system's stability. Therefore, the study focused on the listed companies in Sri Lanka.

Based on the above arguments, in terms of listed companies in Sri Lanka, the study *initially* assessed the level of the ICS. *Secondly*, it examined the impact of the ICS on financial performance using the COSO Model.

Empirically, the study perceived it to be significant as it used a globally accepted model for ICS (i.e., the COSO model). Thus, the findings are expected to be more comparable. Practically, the findings of the study emphasized the necessity for focusing on the effectiveness of individual elements of an ICS along with the overall effectiveness of an ICS.

3. Literature Review

3.1. Empirical Studies

Currently, most organizations have a growing interest in their internal control. Teru et al. (2017) reviewed the impact of information accounting systems for effective internal control on firm performance and found that better internal

control gives high financial performance. In the Sri Lankan context, there is a dearth of studies conducted regarding the ICS (Muraleetharan, 2011; Madushani & Jayasiri, 2021; Prabath and Kawshalya, 2018).

Prabath and Kawshalya (2018) studied the impact of ICS on the financial performance of public banks in Sri Lanka. Similarly, Kumuthinidevi (2016) studied the effectiveness of ICSs in private banks in the Trincomalee district and concluded that all variables moderately support the effectiveness. An empirical study on the impact of internal control and the financial performance of private and public organizations in the Jaffna district reveals that internal control significantly impacts financial performance. Further, that study identified control environment, information and communication negatively influence financial performance. In contrast, risk assessment, control activities, and monitoring dimensions of internal control led to better financial performance (Murleetharan, 2011).

3.2. Theories, Models, and Hypotheses Development

3.2.1. Internal Control System and Agency Theory

Agency theory identifies the relationship between managers and investors by segregating the duties and responsibilities of the manager on behalf of the investor and the compensation paid to the manager for the services received from the investor (Jensen & Mckling, 2019). To give a theoretical framework for the concepts and variables, Odek and Okoth (2019) used agency theory. They explained an agent is utilizing the resources of a principal and they have little to no risk because all losses will be the burden of the principal. The theory argues that agents have more information than principals, and this information asymmetry is the reason for the agency gap (Muhunyo, 2018). The study accommodated the Agency theory as ICSs improve organizational performance by reducing agency costs (Kisanyanya & Omagwa, 2018).

3.2.2. Internal Control System and Contingency Theory

Contingency theory is a social theory that describes how contingent factors impact the organization's function. Organizational effectiveness depends on technology, size, information system, etc. Contingency theory defines the relationship between the structure of internal control effectiveness and the organization's performance (Ng'Etich, 2017). Another empirical researcher studied the structure and effectiveness of internal control through a contingency approach and found that ICSs mediate with the contingency's characteristics (Jokipii, 2006).

3.2.3. Internal Control System and Reliability Theory

Reliability theory is the probability of completing an expected function during an interval (Gavrilov & Gavrilova, 2005). Reliability theory argues that ICSs are used to assess and control risks (Odek and Okoth, 2019). Reliability theory describes the level of internal control over the reliability of financial reporting (Odek and Okoth, 2019; Ishaku et al., 2020). Therefore, according to the theory, assessing and controlling risk is vital to deduct errors and fraud. Evaluating internal controls to ensure reliability, compliance, and effectiveness is essential. Accordingly, by considering the agency theory, contingency theory, and reliability theory, the central hypothesis was developed as follows:

H1: Internal control systems significantly impact the financial performance of Sri Lankan listed companies

3.2.4. COSO Model

The COSO model is a framework used to establish internal control by ensuring that an entity operates transparently and ethically, in accordance with the applicable standards. It is designed and established to provide reasonable assurance with regard to effective and efficient operations, reliable financial reporting, and compliance with the laws and regulations (Schneider & Becker, 2011). According to the COSO model, ICSs are classified under five dimensions: control environment, control activities, risk assessment, information and communication, and monitoring activities. According to five dimensions, we develop our sub-hypotheses as follows:

The control environment has a significant influence on the operating and strategic decisions of an organization. It consists of five principles: integrity and ethical values, the Board of directors' independence from management and oversight of internal controls, Organization structure, Attracting, developing, and retaining quality employees, management's control philosophy, and risk appetitive (Committee of Sponsoring Organizations of the Treadway Commission, 2013).

H1a: Control environment significantly impacts the financial performance of Sri Lankan listed companies

Control activities mainly deal with the policies, procedures, and mechanisms related to the organization. Nyakundi et al. (2014) defines control activities as the policies and procedures that help ensure management directives are carried out to minimize the problem.

H1b: Control activities significantly impact the financial performance of Sri Lankan listed companies

Risk assessment identifies, evaluates, and monitors risks and takes relevant actions for firm-associated risks. According to Inusah and Abdulai (2015), an organization should focus on a cost-versus-benefit approach when assessing risks.

H1c: *Risk assessment significantly impacts the financial performance of Sri Lankan listed companies*

Information and communication is communicating information between the entity and other interested parties to coordinate activities. It focuses on the nature and quality of information needed for effective control and effective communication between all levels of management (Gamage, 2014).

H1d: *Information and communication significantly impact the financial performance of Sri Lankan listed companies*

Monitoring is the reviewing of activities to measure the quality of operations (Thabit, 2017). It briefly explains the positive and negative effects of the organization (Kumari & Weerasooriya, 2019).

H1e: *Monitoring activities significantly impact the financial performance of Sri Lankan listed companies*

Based on the above discussion, a conceptual framework was developed as follows.

Figure 1: Conceptual Framework
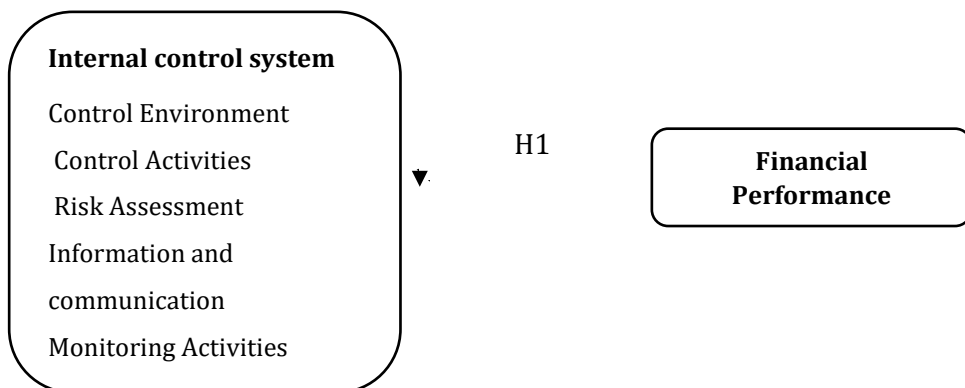
Source: Author Constructed

4. Research Method

The study followed a quantitative methodological approach to test hypotheses. The study sample considered Managers, Finance Officers, Heads of Departments, and Executives from the field of Accounting and Finance divisions

as respondents representing 165 companies from a population of 296 companies listed on the Colombo Stock Exchange. The researcher used Morgan's Table to select the sample size, including a sample of 20 GICS companies in Sri Lanka. The study is based on the stratified systematic sampling method in which the respondents are categorized into strata and selected randomly with a fixed or periodic interval. The study used a Self-administered questionnaire to gather data from the respondents. The questionnaires comprise a five-point Likert scale ranging from 1 (i.e., Strongly disagree) to 5 (i.e., Strongly agree).

Financial performance is considered the dependent variable, whereas control environment, control activities, risk assessment, information and communication, and monitoring activities are considered independent variables per the development of the hypotheses. Table 1 represents the working definitions of the variables based on the literature and the sources used to identify items for the questionnaire. All the variables were measured through a self-administrated questionnaire using a five-point Likert scale.

Table 1: Operationalization

Variable	Items	Working Definitions	Measurement	Source
Financial performance	5	Financial performance is the change in the organization's financial state or the financial outcomes that result from management decisions and their implementation. (Kumari and Weerasooriya, 2019).	Five-point Likert scale	Kumari and Weerasooriya, (2019)
Control Environment	4	The control environment includes how management teams are involved in controlling an entity towards the problem, including communication, integrity, HR practices and ethical values (Hayali et al., 2013).	Five-point Likert scale	Munene (2009)
Control Activities	4	Control activities are defined as establishing policies, procedures and mechanisms that govern the management's	Five-point Likert scale	Alawaqleh, (2021)

Variable	Items	Working Definitions	Measurement	Source
		directives (Herwiyanthi et al., 2020).		
Risk Assessment	4	Risk assessment is a systematic procedure to identify and analyze risks and how to reduce those risks (Kumari et al., 2019).	Five-point Likert scale	Aziz et al., (2015)
Information and communication	4	Information and communication involve the process of generating information with high quality and communicating that information effectively (Kumari et al., 2019).	Five-point Likert scale	Ishaku et al., (2020)
Monitoring	4	Monitoring is defined as the process of evaluating the quality of the functions and the performance of an entity (Ishaku et al., 2020).	Five-point Likert scale	Robert and Elmad, (2019)

Source: Author Constructed

According to above Table 1, financial performance can be objectively measured by operations and policies in monetary terms (Kumari and Weerasooriya, 2019). The study used Descriptive Statistics and a sample test to assess the level of the ICSs (Hamour et al., 2021), whereas Multiple regression analysis and Correlation analyses were used to examine the impact of ICSs on financial performance (Jacob et al., 2016; Ahmed and Muhammed,2018).

The relationship between the dependent variable (Y) and the independent variable (X) can be stated as follows by using a multiple linear regression model.

$$Y= \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

where, Y = Financial Performance; α = Constant; X1 = Control Environment; X2 = Control Activities; X3 = Risk Assessment; X4 = Information and Communication; X5 = Monitoring; ε = Error term.

5. Findings and Discussions

5.1. Descriptive Statistics

According to Table 2 below, descriptive statistics are performed using an independent variable, such as control environment, control activities, risk assessment, information and communication, and monitoring, and a dependent variable, such as financial performance. Mainly, descriptive statistics are used to assess the level of internal control of listed companies as shown in research objectives. According to that, all the mean values were calculated at approximately 4, indicating that all the variables are important factors in determining internal control. Therefore, mean values of independent variables indicated that firms have well-operating internal control systems.

Table 2: Descriptive Analysis

Variable	Range	Minimum	Maximum	Mean	Std. Dev
Control Environment	4	1	5	4.07	0.58
Control Activities	2	3	5	4.22	0.49
Risk Assessment	3	3	5	4.15	0.47
Information and Communication	2	3	5	4.17	0.42
Monitoring	3	3	5	4.19	0.43
Financial Performance	2	3	5	4.28	0.42

Source: Output of Data Analysis

As an independent variable, the Control Environment has a minimum value of 1, and other variables have a minimum of 3. The maximum value is 5 for all the variables, and the range value is between 2 and 4. The questionnaire represents a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

5.2. One Sample T-test

One sample t-test was conducted to assess the level of ICS in Sri Lankan listed companies. According to Table 3, the ICS level was satisfactory since all the independent variables (i.e., control environment, control activities, risk assessment, information and communication and monitoring) have an approximate mean value of 4 (out of 5). Further, all the calculated mean values

were significantly above the test value of 3. However, the highest level of the internal control variable is considered as control activities since the variable possesses the highest mean value (i.e., 4.217) and the highest mean difference (i.e., 1.217) among five internal control-related variables. On the other hand, the internal control variable's lowest level is considered the control environment since the variable calculated the lowest mean value (i.e., 4.065) and the lowest mean difference (i.e., 1.065) among five internal control-related variables. Interestingly, the findings reveal that the internal control level is satisfactory in listed firms.

Table 3: One Sample T-test

Variable	t	Mean	Mean Difference [a]	Sig.
Control Environment	90.59	4.07	1.07**	0.000
Control Activities	109.75	4.22	1.22**	0.000
Risk Assessment	113.64	4.15	1.15**	0.000
Information and Communication	128.50	4.17	1.17**	0.000
Monitoring	123.98	4.19	1.19**	0.000

[a] the significance of the difference between the test value of 3 (Mid value) and the mean values, where **Difference is significant at 1%.

5.3. Correlation Analysis

The correlation Table 4 represents the relationship between internal control variables against the financial performance of listed companies in Sri Lanka. The results showed that all five variables positively relate to financial performance.

Table 4: Correlation Analysis

Variable	Pearson Correlation	Sig.
Control Environment	0.346**	0.000
Control Activities	0.467**	0.000
Risk Assessment	0.421**	0.000
Information and Communication	0.481**	0.000
Monitoring	0.477**	0.000

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

The correlation between the control environment and financial performance is statistically significant at 0.01, less than 0.05, with a Pearson correlation coefficient of +0.346. If the Pearson correlation is more than between 0.3 and 0.49, there is a moderate relationship between variables. Therefore, 0.346 is higher than 0.3, and a moderate relationship exists between the control environment and financial performance. It indicates that the control environment positively impacts financial performance. There is a significant correlation between control activities and financial performance at 0.01 level with a coefficient of +0.467. It indicated that control activities positively impact financial performance with a moderate relationship (0.3<0.467<0.49).

The risk assessment and financial performance have a Pearson correlation of +0.421, representing a positive impact between risk assessment and financial performance. The correlation between information and communication and financial performance is statistically significant at 0.01, with a Pearson correlation of +0.481. It reveals a positive relationship between information and communication and the financial performance of listed companies. The correlation between monitoring and financial performance is +0.477, indicating that monitoring positively impacts and has a moderate relationship to financial performance. Therefore, as presented in the table below, all five variables have a positive impact with a moderate relationship with the financial performance of listed companies.

5.4. Multiple Regression Analysis

Multiple regression analysis was conducted to examine ICS's impact on financial performance; the results are displayed in Table 5 (i.e., Summary of Multiple Regression Analysis).

To explain the percentage of variation in the dependent variable "financial performance," as explained by the independent variables, we used a regression model to determine R square, as displayed in Table 5. Based on the model summary, the findings show that the independent variable contributes 37.2% of the variation in financial performance, as explained by an adjusted R square of 35.2% with a significance value of 0.000.

Table 5: Summary of Multiple Regression Analysis

Variable	β	t	Sig.	VIF
Constant	1.179**	3.641	0.000	

Control Environment	0.118*	2.367	0.019	1.201
Control Activities	0.145	1.919	0.057	2.022
Risk Assessment	0.061	.793	0.429	1.921
Information and Communication	0.173*	2.058	0.041	1.788
Monitoring	0.247**	3.364	0.001	1.485
F-Value	18.814			
R2	0.372			
Adjusted R Square	0.352			
Sig.	0.000			
N	165			

Source: Output of Data Analysis

Considering the findings of the above table (Table 5), the unstandardized coefficient (β) for the control environment is equal to 0.118. It indicates that the control environment positively impacts financial performance with an unstandardized coefficient of 0.118. the impact is statistically significant at 5% (Sig., 0.019). Similarly, information and communication also impact financial performance with an unstandardized coefficient of 0.173, which is statistically significant at 5% since the p-value is less than 0.05 (0.041). Interestingly, there is statistically enough evidence to support that the internal control variable of monitoring displays the highest unstandardized coefficient (i.e., 0.247) at 1% (Sig., 0.001<0.01). However, there is no impact of risk assessment and control activities on financial performance because the significant value is greater than 0.05. To find the impact, the study mainly used descriptive statistics, correlation analysis, and multiple regression analysis as described in existing literature (Hamour et al., 2021; Jacob et al., 2016; Ahmed and Muhammed, 2018). The findings showed a positive relationship between the five components of internal control and financial performance. From that Control Environment, Information Communication and Monitoring significantly impact the financial performance of listed companies.

The empirical studies showed a significant relationship between ICS and financial performance (Muhunyo, 2018; Ali, 2013; Nyakundi et al., 2014; Hamour et al., 2021) since it is evident in the study that risk assessment and control activities are not statistically significant, the study recommends that

organization should focus more on the Control Environment, Information and Communication, and monitoring. The findings also align with the empirical study conducted by Athurupana (2019), which found that control activities insignificantly impact the financial performance of commercial banks. Further, the researcher suggests maintaining and improving the existing internal controls in listed companies to enhance the financial performance to build a sound economic system. Interestingly, Madhushani and Jayasiri (2021) also argued that Sri Lankan companies focus more on overall ICSs rather than on individual elements.

Considering the hypothesis, correlation analysis (Table 4) indicates a positive relationship between internal control variables and financial performance, whereas regression analysis (Table 5) supports the statement. For instance, H1a is considered to be a supported hypothesis. Considering H1b, findings show that it is statistically insignificant and positively impacts financial performance. Therefore, the control environment has an insignificant impact on financial performance, and H1b is insignificant. Hypothesis (H1c): risk assessment impacts the financial performance of listed companies in CSE. The correlation analysis reveals that it positively impacts financial performance but is not statistically significant. Therefore, H1c is not supported. The study found that H1d impacts positively, and the impact is also statistically significant. Therefore, H1d is a supported hypothesis. According to the findings, H1e is also statistically significant and positively impacted. Therefore, H1e is a supported hypothesis.

6. Conclusion

The study identifies ICSs and their effectiveness in financial performance in organizational contexts. The study consists of two main research objectives, namely, to assess the level of ICS and to examine the impact of ICS on financial performance. In particular, the study demonstrates how independent variables (Control Environment, Control Activities, Risk Assessment, Information and Communication, and Monitoring) impact the Firm performance of listed companies in Sri Lanka.

Considering the objectives, the first objective represents the level of ICSs of listed companies and is measured using descriptive statistics and the One Sample T Test. The findings reveal that firms have maintained efficient ICS and operate it promptly since all the ICS variables possess mean values that are significantly greater than 3. The second objective is to examine the impact of ICSs on financial performance. The correlation analysis reveals that all five dimensions of internal control have a positive impact on financial performance. Considering the findings from the regression analysis, it indicated that control

environment, monitoring, information, and communication are statistically significant.

In contrast, risk assessment and control activities are statistically insignificant to financial performance. Therefore, the study recommends that organizations focus more on Control Environment, Information and Communication, and Monitoring. In contrast, they should also consider risk assessment and control activities to develop a more effective internal control environment.

When considering the limitations, the study is limited to the companies listed on the Colombo Stock Exchange. On the other hand, the study is limited to the internal factors affecting financial performance and does not focus on external factors. The study recommends that future studies use primary and secondary data for data collection. Also, future studies can use control variables, for example, firm size, in the conceptual framework for controlling the risk when implementing the internal control system. On the other hand, future studies can focus on internal and external factors affecting the ICS. Also, the researcher suggests applying areas like challenges when implementing ICS and the impact of information technology on ICS in future studies.

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IMPACT OF DIVIDEND POLICY ON FIRM PERFORMANCE EVIDENCE FROM SRI LANKAN LISTED COMPANIES

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Abstract

One of the most controversial issues in the field of finance is the behavior of the dividend policy, which is still given considerable attention in developing economies. There are limited research studies investigating the associations between dividend policies and financial performance, particularly in developing nations. Thus, the purpose of this paper is to investigate the impact of dividend policy on the firm performance of Sri Lankan publicly listed companies. The population of interest for this study consists of 289 companies registered on the Colombo Stock Exchange, and 100 companies were selected at random. The dependent variable is firm performance, which is measured by return on assets and return on equity, and the independent variable is dividend policy, which is measured by dividend payout ratio and dividend yield. The data are collected from the annual reports of selected companies for the period from 2017 to 2022, which are available on the Colombo Stock Exchange and the company website. The results of Hausman's model specification test concluded that the fixed effects model is most appropriate for testing the formulated hypothesis. The regression outcomes indicate a positive relationship between dividend policy and firm performance, but dividend yield has an insignificant impact on return on assets. The conclusion of the study is that dividend policy explains a significant portion of a company's performance, indicating that dividend policy has a statistically significant effect on a company's performance. The results of this research will assist decision-makers, prospective investors, academics, econometricians, and other interested parties in making decisions regarding the managerial implications of the economy and corporate sector.

Keywords: Dividend policy, firm performance, Hausman's model specification test.

1. Introduction

The dividend is a form of compensation shareholders receive for bearing a certain level of risk (Lipson et al., 1998). Therefore, the dividend decision is the most challenging and critical element of a company's long-term financial strategy over the past few decades to preserve shareholder wealth (Chauhan et al., 2019). In addition, the dividend policy of a company might provide insight into the company's success and growth prospects (Ali, 2022; Shehata, 2022).

There are several theoretical and empirical pillars advancing the link between dividend policy and corporate performance (Chauhan et al., 2019). In the "perfect world" scenario proposed by Miller and Modigliani (1961), dividend policy is assumed to have an indirect effect on a company's value. That research study shows that the value of businesses is affected by growth prospects (future earnings) and investment risk. However, Miller and Modigliani's "perfect world" scenario has been disputed by Black (1976).

Black's claim has been supported by several research studies (Hasan et al., 2023; Hauser & Thornton, 2017; Ofori-Sasu et al., 2017; Tran, 2021) that have relaxed the perfect market assumptions made by Miller and Modigliani. The interactions in the modern world do not represent a perfect system (Hauser & Thornton Jr, 2017). Black argues that dividends are tax disadvantageous compared to stock repurchases and, therefore, should not have a direct impact on firm value. Thus, Black (1976) presents a "puzzle" of dividend policy among companies and argues that the pervasiveness or prevalence of dividend-paying firms embodies the conundrum. The dividend decision remains one of the most pressing unanswered questions in finance even though dividend theories have progressed over several decades.

Sondakh (2019) discovered a negative relationship between dividend policy and firm performance after examining the impact of dividend policy on the value of firms in the financial services industry. However, Hauser and Thornton Jr. (2017) revealed a positive correlation between dividend policy and corporate valuation. On the other hand, using data from the Ghana Stock Exchange, Ofori-Sasu et al. (2017) found an adverse relationship between dividend yield and the wealth of shareholders in Ghana. These findings contradicted the results reported by Oppong Fosu (2015), who analyzed the dividend policy along with the performance of listed Ghanaian banks. Thus, it is important to note that previous studies have consistently produced contradictory outcomes regarding the association between dividend policy and firm performance.

Many research studies (Arnott & Asness, 2003; Farsio et al., 2004; Nissim & Ziv, 2001) have been conducted on dividend policy and firm performance, particularly in wealthy nations. However, these studies' conclusions and findings cannot be matched in developing nations. It is crucial to examine the

dividend policy dilemma in developing nations and to compare them to established markets to see if there are any differences in the dividend policy situation. In addition, there is a dearth of research into the link between dividend policy and company profitability in Sri Lanka (Wijekoon & Senevirathna, 2019). According to the existing literature, empirical research has been carried out in a wide range of nations with varying economic and social settings. Since Sri Lanka's economic, social, and technological factors are unique, it is crucial to conduct research of this nature in Sri Lanka. This research inquires, "What is the impact of dividend policy on the firm performance of listed companies in Sri Lanka?"

2. Literature Review

In the field of corporate finance, dividend payout policy has always been a contentious topic and unsolved conundrum (Baker & Kapoor, 2015; Raza et al., 2018; Wadhwa & Sharma, 2014). Some research on dividend policy has already been undertaken, making it an ongoing subject of debate in the economics and finance communities (Raza et al., 2018). The finance literature contains numerous underlying theories, including the Modigliani-Miller, bird-in-hand theory, and agency theory.

Miller and Modigliani (1961) developed one of the most well-known and influential dividend theories. Despite being presented over 50 years ago, it is still regarded as one of the greatest credible theories. The Modigliani-Miller (1961) theory, commonly known as the irrelevance theory, is a cornerstone of corporate finance that contends that a company's dividend policy has no bearing on its overall value or performance. According to this idea, a company's value is purely based on its cash flows and the risk attached to those cash flows in a perfect capital market with no taxes or transaction expenses. This theory implies that the dividend payout ratio, i.e., the proportion of profits distributed as dividends, should not significantly affect a firm's performance in terms of its overall value or profitability.

Contrary to Modigliani-Miller's irrelevance theory, the "bird-in-hand theory" posits that dividends can influence a company's value. Lintner (1956) first proposed this theory, which has since become a generic term for all studies claiming that dividend payments are positively correlated with a company's value. This theory is based on the proverb, " Better a bird in the hand than two in the bush." This theory posits that investors prefer to have "one bird in hand" in the form of a dividend payment from a stock than "two birds in the bush" in the form of a potential capital gain that is larger and more uncertain. From a financial standpoint, investors tend to be more excited to purchase stocks that pay a current dividend than those that will pay dividends in the future and retain earnings. This notion was supported by Gordon (1962) and Gordon (1959). The bird-in-the-hand theory disputes that investor favor cash dividends over

retained earnings due to the unpredictability of future cash flows. As a result, a higher dividend payout ratio reduces the required rate of return and increases the value of the firm (Lintner, 1956).

In accordance with agency theory, a principal employs an agent to perform services on his behalf (Jensen & Meckling, 2019). Managers have the fiduciary duty to maximize shareholder value on behalf of the shareholders (Windsor & Boatright, 2010). However, the relationship between the principal and the agent is complicated by a number of circumstances. First, there is a conflict of interest between the principals, information asymmetry between the principal and agent, and the proprietor's inability to ensure that the agent acts in accordance with his/her wealth maximization objective. Consequently, agency costs result from the agent's divergent behavior (Jensen & Meckling, 2019). Dividend policy aims to reduce agency costs because through dividend payout, enterprises are strictly tracked by capital markets authorities, and managers are kept on their toes to act in the best interests of shareholders (Hamdan, 2018; Schooley & Barney Jr, 1994). Dividend policy helps to solve the agency problem, and as a result, increased financial performance increases shareholder value (La Porta et al., 2000).

One of the most essential aspects of evaluating a company's success is its dividend policy (Kanakriyah, 2020; Olaoye & Olaniyan, 2022). The dividend policy's behavior is one of the most debated topics in financial literature and still holds a prominent position in emerging markets. Only a few studies have explored the relationship between dividend policy and financial performance, particularly in developing nations. Enekwe et al. (2015) discovered a significant relationship between dividend payout ratio and return on capital employed (ROCE), return on assets (ROA), and return on equity (ROE) of cement-related businesses in Nigeria over a 12-year period. Similarly, Hafeez et al. (2018) used a regression model based on panel data to analyze ROA and ROE as performance indicators and the dividend payout ratio and EPS as indicators of dividend policy and concluded that dividend policy influences firm performance. In addition, Farrukh et al. (2017) conclude that dividend policy, which is measured by two variables, dividends per share and dividend yield, has a substantial impact on ROE-based firm performance.

Velnampy et al. (2014) endeavored to determine the link between dividend policy and firm performance for listed Sri Lankan manufacturing firms. Returns on equity and return on assets were used to determine the performance of a company, while dividend payout and earnings per share were used to evaluate dividend policy. According to the findings of the study, there is no correlation between dividend policy determinants and firm performance indicators.

Consequently, a number of research studies conclude that dividend policy positively influences firm performance (Aman-Ullah et al., 2020; Emeka-

Nwokeji et al., 2022; Jatoi & Rasheed, 2023; Mopho et al., 2022). Few studies, however, have concluded that dividends have a negative impact on firm performance, and some researchers have discovered an insignificant correlation between dividends and performance (Kanakriyah, 2020). following hypotheses are developed based on the above discussion:

H_1: - Dividend payout ratio has a positive impact on return on equity.

H_2: - Dividend yield has a positive impact on return on equity.

H_3: - Dividend payout ratio has a positive impact on return on assets.

H_4: - Dividend yield has a positive impact on return on assets.

3. Methodology

This study used quantitative techniques to assess the relationship between corporate governance and dividend policy of Sri Lankan listed companies from 2016/17 to 2021/22. This study's population of interest consists of 289 listed companies on the Colombo Stock Exchange (CSE) as of May 31, 2023. The research sample is comprised of 100 listed companies chosen at random.

Two distinct measures, dividend yield and dividend payout, are used as proxies for the independent variable of this study. According to the literature, dividend yield is determined as the dividend per share divided by the market price per share at the end of the year (Al-Najjar & Kilincarslan, 2016; Rajput & Jhunjhunwala, 2019) and the dividend payout ratio is measured by the ratio of dividend per share to earnings per share (Al-Najjar & Kilincarslan, 2016; Yanti & Dwirandra, 2019). Both of these variables have a positive value when the company paid dividends and a value of zero when the company did not pay dividends. Firm performance is measured by Return on Assets (ROA) and Return on Equity (ROE) as a dependent variable. In accordance with previous research, ROA is calculated as the ratio of earnings before interest and taxes to total assets, whereas ROE is calculated by dividing the profit after taxes and dividends of preference of a given year by the book value of equity (Moore & Simpson, 2023; Tran & Vo, 2022). The data for the empirical analysis is gathered from the selected company's annual reports, which are available on the Colombo Stock Exchange (CSE) and the company website. EViews 12 is used to generate Spearman rank correlation and Ordinary Least Squares for the quantitative data (OLS). Two model specifications are used to investigate the link between dividend policy and firm performance.

$ROA_{it} = a + \beta 1 DPO_{it} + \beta 2 DY_{it} + e_{it}$ ....Model (1)

$ROE_{it} = a + \beta 1 DPO_{it} + \beta 2 DY_{it} + e_{it}$ ....Model (1)

Where ROA= Return on Assets. ROE = Return on Equity, α = regression constant, DPO = dividend payout ratio, DY = dividend yield, and e=error term

4. Data Analysis and Discussion

4.1. Correlation Analysis

Table 1: Results of the Spearman Rank Correlation Analysis

	DPO	DY	ROE	ROA
DPO	1			
DY	0.67***	1		
ROE	0.21***	0.41***	1	
ROA	0.15***	0.06	0.11***	1

Source: Output of Data Analysis

Table 1 displays the results of the Spearman rank correlation analysis on the selected variables to check multicollinearity issues. ROE has a positive correlation with DPO (r = 0.21, p 0.00) and DY (r = 0.41, p 0.00), but ROA only has a positive correlation with DPO (r = 0.15, p 0.001). When an independent variable is highly correlated with one or more of the other independent variables in the research model, this is referred to as multicollinearity (Allen, 1997). According to Akoglu (2018), Spearman's correlation coefficient value is greater than 0.80, indicating a very strong correlation between the variables. None of the independent variables are highly correlated with each other (r<0.8). Therefore, this result concludes that there are no multicollinearity issues. Additionally, the presence of multi-collinearity among independent variables can be detected using the tolerance test and the Variance Inflation Factor (VIF) (O'Brien, 2007; Schroeder et al., 1990). The results of the tolerance test and VIF test are presented in Table 2. A VIF greater than ten is considered to indicate significant collinearity (Midi et al., 2010), a tolerance of less than 0.20 is considered to be concerning, and a tolerance of less than 0.10 is considered to indicate severe collinearity (Chen et al., 2008; Menard, 2002). Table 2 shows that the VIF is less than ten and the tolerance value is more than 0.10, demonstrating that no multicollinearity exists among the independent variables.

Table 2: Test of Colinearity

	Tolerance	VIF
DPO	0.555	1.801
DY	0.555	1.801

Source: Output of Data Analysis

4.2. Regression Analysis

The results of Hausman's (1978) model specification test are used to choose between the fixed-effect and random-effect models, as shown in Table 3. In the

Hausman Test, the null hypothesis is that the preferred model has random effects, whereas the alternative hypothesis is that the preferred model has fixed effects (Dieleman & Templin, 2014). The fixed effects model is preferred for both models based on the probability of the Hausman test presented in Table 3, which is less than 0.05. This indicates that the research rejects the null hypothesis of the Hausman test, which holds that random effects are preferred, and accepts the alternative hypothesis that the fixed effects model is favored.

Table 3: Results of Hausman's test

	Statistic	p-value	Selection
Model 01	33.10772	0.00	Fixed
Model 02	31.8	0.00	Fixed

Source: Output of Data Analysis

The regression results for the two models are presented in Table 04. Interestingly, DPO appeared to positively influence ROE (R=0.10, p=0.01). This result is consistent with the findings of Uwuigbe et al. (2012), which indicate a positive correlation between dividend payout ratio and ROE in Nigerian listed firms. Similarly, there is a positive correlation between DPO and ROA (R=0.01, p=0.04). This result indicates that a higher dividend payout contributes to a higher ROA, but the effect is minimal. When the dividend payout rate increases by one percentage point, the return on assets increases by only 0.01 percentage points. This result is consistent with the findings of Amidu (2007) and Nguyen et al. (2021), but it contradicts the findings of (Khan et al., 2016). DY has no significant impact on ROA (R=0.17, p>.01) but a significantly positive relationship with ROE (R=1.29, p=0.00).

Table 4: Result of OLS regressions

	Model 01 (ROE)			Model 02 (ROA)		
	Coeffici-ents	t Stat	P-value	Coeffici-ents	t Stat	P-value
Constant	0.14	21.98	0.00	0.05	11.04	0.00
DPO	0.10	2.57	0.01	0.01	2.61	0.04
DY	1.29	0.25	0.00	0.17	0.09	0.93
R Square			0.64			0.51
Adjusted R Square			55			0.39
F-statistic			7.1			4.16
Prob(F-statistic)			0.00			0.00

Source: Output of Data Analysis

The regression model 01 results showed that the two dividend policies explained 64 percent of the variance in ROE ($R^2=0.64$, F=7.1, p0.00) and 51 percent of the variance in ROA ($R^2=0.51$, F=4.16, p 0.00) of listed companies in Sri Lanka. Because other internal and external factors such as corporate governance, firm characteristics, political, legal, economic, and so on may impact on firm performance.

5. Conclusions

Furthermore, there is a lack of empirical support for dividend policy's impact on firm performance in developed and developing countries, particularly in Sri Lanka. As a result, this study examines the association between board characteristics and firm performance in 100 listed companies in Sri Lanka for the financial year from 2017/18 to 2021/22.

This study concludes that the dividend policy has a significant impact on firm performance, particularly DPO and DY. However, DY has a negligible relationship with ROA.

This study only considers DPO and DY, which are utilized to gauge dividend policy, as well as ROA and ROE, which are utilized to measure performance. Thus, future studies can include the dividend per share and earnings per share, firm characteristics, and governance characteristics such as board characteristics, audit committee, and ownership structure; they can also use the ROI and Tobin Q ratio to measure the performance. This study is conducted in the Sri Lankan context, so future studies might be needed in both developed and developing countries or conduct a cross-country study. This study uses the OLS techniques. Thus, future research works can use other statistical techniques, such as partial least squares structural equation modelling.

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MODELLING AND FORECASTING THE SEASONAL VARIATIONS OF APPAREL EXPORTS IN SRI LANKA WITH A SPECIAL REFERENCE TO COVID-19 PANDEMIC

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Abstract

The apparel industry in Sri Lanka contributes predominantly to the country's economy. Therefore, it is crucial for policymakers and other stakeholders to know about the apparel and textile export behavior to make informed decisions. Thus, the main aim of this study was to model and forecast Sri Lankan apparel and textile exports using the data for the period of January 2007 to December 2022 and provide accurate forecasts. ARIMA model was employed for the univariate time series analysis with modeling and forecasting. Among the candidate models, ARIMA $(1,1,1)$ $(2,0,0)_{12}$ was the best-fitted model based on the information criteria: AIC, AICc and BIC. Then, the model adequacy checking of the selected model was done using residual diagnostic graphs, the portmanteau test, the Ljung-Box test, and the characteristic roots of the model, which found that the model was adequate for forecasting. Subsequently, the forecasts were generated for two years ahead, and the forecast accuracy was checked with metrics such as MAPE, RMSE and MAE. The best-fitted model was found to have an average prediction error of 11.77%, while RMSE and MAE were 78.57 and 59.92, respectively. Further, an analysis of the major fluctuations of the time series during the period of study was done, and it was found that despite the inevitable adverse impact of the COVID-19 pandemic in its initial phase, the apparel sector swiftly adapted and showed a significant improvement in export earnings during the post-COVID period.

Keywords: ARIMA, export earnings, textile exports.

1. Introduction

1.1. Sri Lankan Apparel Industry

Apparel manufacturers in Sri Lanka are reputed for their ethical manufacturing of high-quality apparel and have global clientele, including iconic global fashion brands. According to the Sri Lanka Export Development Board (SLEDB), they have successfully tapped into the global market by moving beyond traditional designs and exports, providing reliable, creative, and sophisticated apparel solutions through research and development, innovation centers, and BPO services.

Further, as per the Industry Capability Report published in 2022 by SLEDB, Sri Lankan apparel exports are known for the use of best practices and technology in the apparel sector where they included the world's first eco-friendly "Green Garment Factory" that cut energy and water consumption by 50% and 70% respectively. These factories have adopted lean manufacturing which has helped them lower their overheads and yield faster Return on Investment, leading to sustainable businesses.

In addition to that, according to SLEDB, Sri Lanka has the ability to provide a competitive regional advantage by utilizing regional strengths in the supply chain, which is one of the core competencies of the apparel industry in Sri Lanka. Further, the investment-friendly government policies of the country and strategic location advantage significantly contribute to the success of the Sri Lankan apparel sector.

1.1.1. Impact of Apparel Industry on Sri Lanka's Economy

The Sri Lankan apparel industry is one of the main contributing sectors to the country's economy. As per the SLEDB Statistics, performance in the apparel sector exports in 2022 was recorded as USD 5933.52 Million (Figure 1).

Figure 1: Performance in the Apparel Sector Exports in 2022
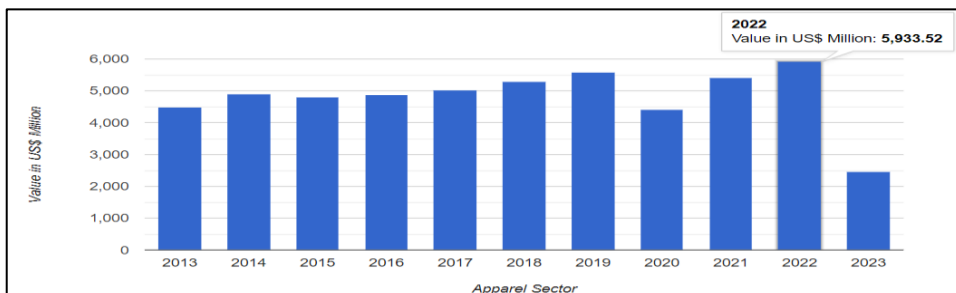
Source: SLEDB Statistics

According to SLEDB Statistics, apparel and textile exports account for approximately 46.46% of the country's total merchandise exports as of December 2022 (Figure 2).

Moreover, as stated in the Central Bank of Sri Lanka (CBSL) Annual Report, earnings from total exports surpassed USD 13 Billion per year for the first time in the year 2022, which marked an increase of 4.9% from the previous highest recorded in the year 2021. The increase was mainly due to the increased earnings from industrial exports, which include apparel and textile exports. Further, in 2022, there was a decline in the cumulative trade deficit, which was mainly due to the increase in apparel and textile exports. However, in the month of December 2022, there was a decline in earnings from industrial exports compared to December 2021, which was mainly due to the high inflation and recession faced by Sri Lanka's major markets, including the European Union (EU), UK, and USA.

Figure 2: Merchandise Exports in Apparel Sector as of December 2022
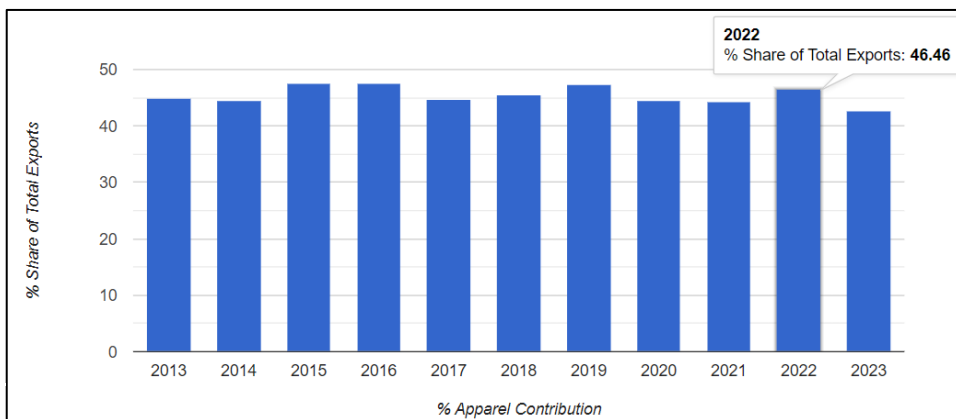
Source: SLEDB Statistics

Further, as per the national accounts data published by CBSL on Gross Domestic Product (GDP) by industrial origin at current market prices under GDP (Production Approach), for 2022, the Sri Lankan apparel industry contributes approximately 6% to the country's GDP.

Furthermore, the apparel industry significantly contributes to job creation and employment in the country. Brandix, MAS Holdings and Hirdaramani are prominent multinational apparel organizations with workplaces and garment factories across Asia, Europe, and North America (Roshana et al., 2020). According to SLEDB, the apparel industry provides direct employment for 350,000 individuals, with another 350,000 people (approximately) supporting this workforce. Moreover, female participation in the workforce is noteworthy

in this industry, which approximately amounts to 34%. Thus, it is quite apparent that the apparel industry significantly impacts on the country's economy.

1.1.2. Latest Tendencies in Apparel and Textile Exports

With the COVID-19 pandemic, there was a reduction in global demand for Sri Lankan apparel and textile products. Moreover, with the government-imposed restrictions regarding safety in the workplaces, the apparel factories initially could not operate at their full capacity. However, without much time, the apparel industry could identify and exploit some new opportunities even during the pandemic situation. They started producing personal protective equipment (PPE) during that period.

Under the different categories of garments and textiles exports in 2022, the garment category, textiles category and other made-up textile articles account for 92%, 6% and 2% of the total textiles and garment exports, respectively (Figure 3).

Figure 3: Garments and Textiles Exports in 2022
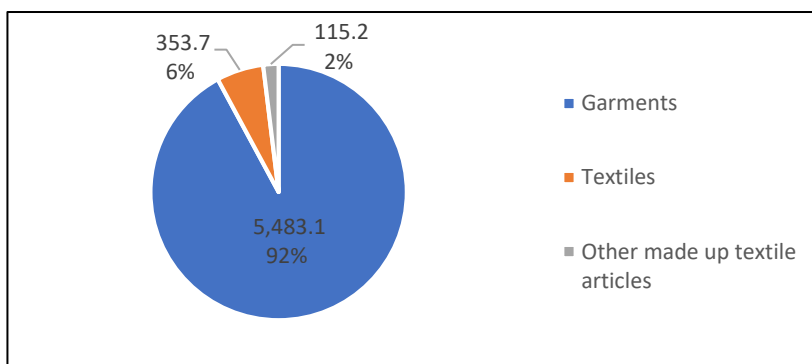
Source: SLEDB Statistics

1.1.3. Apparel and Textile Exports Before and After COVID-19

Prior to the COVID pandemic, during its peak, Sri Lanka's apparel and textile exports significantly declined due to order cancellations and island-wide lockdowns, which adversely affected production. In addition, the majority of the raw materials were imported from China for the Sri Lankan apparel sector, and China's slowdown due to COVID-19 significantly affected production. According to the Joint Apparel Association Forum Sri Lanka (JAAFSL), which is the leading body of the apparel industry in Sri Lanka, export earnings from apparel and

textiles declined by 21% in the first 10 months of 2020 as compared to 2019. According to Weerasinghe et al. (2023), this health crisis also contributed to the country's economic crisis, which was initially thought to have no signs of recovery for Sri Lanka as a developing country that heavily relies on industrial exports like apparel and textiles. However, as the situation improved when restrictions were lifted by the government, apparel and textile production started to increase, and the industry as a whole began to bounce back.

1.1.4. Importance of Modelling and Forecasting Apparel and Textile Exports

Modelling and forecasting apparel and textile exports in Sri Lanka is important for several reasons. One of the main reasons is the impact of apparel and textile exports on the Sri Lankan economy. It is one of the primary sources of foreign exchange earnings of the country while creating many employment opportunities and driving employment growth in the labour market. Thus, modelling and forecasting apparel and textile exports would be important to identify the behaviour of the exports and identify the factors affecting fluctuations. Besides, in general, the import payments exceed the export earnings, resulting in a trade deficit in Sri Lanka over the years. To address this trade deficit issue and increase the contribution to the export earnings through apparel and textile exports, it is important to identify the past behaviour of the apparel and textile exports, model it and generate forecasts. (Edirisooriya and Senevirathne, 2020).

Further, if the apparel and textile exports can be modelled with improved accuracy, policymakers can formulate trade and industrial policies to improve the economic impact of the sector. In addition to that, the apparel businesses would also be able to utilize and encourage innovation, attract investments, and grow businesses sustainably by considering the latest dynamics of the industry.

1.2. Significance of the Study

Modelling and forecasting export values of the apparel sector, which is a vital sector that significantly contributes to the Sri Lankan economy, is an important area to study. Though there are previous studies done to model and forecast industrial exports as a whole, there are only a few studies done on modelling and forecasting apparel sector exports specifically. One of the previous studies examined the Sri Lankan apparel and textile exports' behaviour prior to the COVID-19 pandemic. However, no previous literature was found which has modelled and forecasted apparel and textile exports in Sri Lanka with a special reference to the COVID-19 pandemic. This study, using the latest available data, was identified as an area to scrutinize and provide significant implications to different stakeholders.

1.3. Problem Statement

No previous studies have been done to model and forecast Sri Lankan apparel and textile exports with a special reference to the COVID-19 pandemic. However, due to the significant impact of the apparel sector on Sri Lanka's economy, it was identified as an important area to study. Therefore, this study attempts to model and forecast the apparel and textile export figures in Sri Lanka.

1.4. Objectives of the Study

The objectives of this study are:

- to model and forecast future apparel and textile export figures
- to find whether Sri Lankan apparel and textile exports are significantly affected by the COVID-19 pandemic
- to identify major fluctuations in the data over the period of study with relevant reasons

2. Literature Review

2.1. Apparel Industry in Sri Lanka

Embuldeniya (2015) studied the apparel industry's impact on the GDP of Sri Lanka. The apparel industry export figures were taken as the independent variable for the study. The finding was that a positive relationship existed between the apparel exports and the GDP of the country, which implied that the apparel sector had an impact on Sri Lanka's economy.

Abeysinghe (2014) stated that the apparel industry was showing a declining contribution to the country's economy, and it was losing the comparative and competitive advantage it once held in the 1980s. However, with reference to the past decade, it was found that there was no substantial decline in the apparel industry's impact on the country's economy, though it indicated a weak positive relationship.

Further, according to the national accounts data published by CBSL on GDP by industrial origin at current market prices under GDP (Production Approach), for the year 2022, the Sri Lankan apparel industry contributes approximately 6% to the country's GDP.

2.2. Data-Driven Approaches of Modelling and Forecasting Time Series

A significant body of literature on time series modelling, and forecasting has been available in recent times. Hence, it is one of the major research interests of many scholars who are into time series analysis. Different mathematical models

are put forward in the literature for improving the accuracy and effectiveness of such modelling and forecasting methods.

2.2.1. Tourist Arrivals

Lin et al. (2011) forecasted tourist arrivals in Taiwan using the data from January 2004 and June 2010. ARIMA, Artificial Neural Network, and Multivariate Adaptive Regression Splines models were employed for the study. The ARIMA model was selected as the best-fitted model based on RMSE, MAPE, and MAD values.

Nagendrakumar et al. (2021) forecasted the tourist arrivals for the period of August 2021 to August 2025, modelling the data using the ARIMA model for the monthly tourist arrivals from January 2000 to July 2021. The best-fitted model was the ARIMA (12,1,3) model, which showed better accuracy in forecasts of tourist arrivals.

2.2.2. Cotton Exports

Ghosh (2017) examined cotton exports in India and utilized the ARIMA model to forecast cotton exports in India in the short run. The study evaluated the ARIMA model with simple exponential smoothing and Holt's two parameters of exponential smoothing to derive the model with higher accuracy. The ARIMA model demonstrated better forecasts than the other models and identified that forecasts are better for the near future. To forecast for a five-month period, the selected model was ARIMA (1,1,0). The predictive power of the model was also tested.

2.2.3. Textile and Garment Exports

Edirisooriya and Senevirathne (2020) modelled and forecasted textiles and garment exports using the export data from 2009 to 2018. The study used Box-Jenkins methodology, and SARIMA modelling was done to model and forecast the exports. The best-fitted model was selected as SARIMA $(2, 1, 0) (1, 0, 2)_{12}$ based on the Akaike criterion, Schwarz Criterion and Hannan-Quinn Criterion. The forecast figures were validated using MSE. However, since the study used the data until 2018, it did not include the shocks resulting from the COVID-19 pandemic and the country's economic downturn.

2.2.4. Oil and Gas Exports

Ahmar et al. (2022) conducted a study to model and forecast oil and gas exports in Indonesia. The study used data retrieved from the Indonesian Central Bureau of Statistics website from January 2010 to March 2022. The analysis was done using R software, and the ARIMA Model was used for modelling and forecasting.

The ARIMA (0,1,1) model was chosen as the best-fitted model using the information criterion, AIC. The study found that the forecasts for oil and gas exports in Indonesia were steady until September 2022.

2.2.5. Agricultural Prices

Wawale et al. (2022) examined the agricultural prices in India to perform forecasting. The period of data used for the modelling was from 2016 to 2021, and forecasts were validated for 2022. The ARIMA model was used, and the forecast accuracy was investigated using MSE and MAPE metrics. The study stated that accurate forecasts were generated with ARIMA modelling.

3. Methodology

3.1. Data Sample

The study is entirely based on the secondary data collected from textile and garment export data published by CBSL under the section of External Sector – Exports, Imports and Trade. Monthly exports of textiles and garments (in USD Million) from January 2007 to December 2022 were considered for this study. The data will be divided into training and test datasets: training set from 2007 January to 2021 December and the test set from 2022 January to 2022 December.

3.2. ARIMA Modelling

Based on the literature, it was found that the ARIMA model generates more accurate forecasts over a short time span than other models. This particular study aims to generate apparel and textile forecasts for the near future; therefore, this model was selected for generating forecasts.

3.2.1. Data Preprocessing

The dataset will be scrutinized first to see if there are any missing values in the series. The ARIMA model does not inherently handle missing data in a time series. Therefore, it is important to address it prior to fitting the model, and Kalman smoother can be used to impute missing values. In addition to this, scrutinizing the outliers will be done. If the outliers have occurred due to a data entry error, they will be removed. However, in this study, there can be outliers due to the COVID-19 pandemic-caused shocks, and they will be retained in the analysis because they contain important information.

3.2.2. SARIMA Model

Based on the literature, the SARIMA Model will be used for the study to find the point forecasts with accuracy.

The general form of seasonal Autoregressive Integrated Moving Average or SARIMA process can be written as follows (Equation 1).

$$\phi_p(B)\Phi_p(B^s)W_t = \theta_q(B)\Theta_q(B^s)\varepsilon_t$$ --(1)

B denotes the Backward shift operator, whereas ϕ_p, Φ_p, θ_q, Θ_q are the polynomials of order p, P, q, Qand respectively. ε_t denotes the white noise at period t. $W_t = \nabla_d \nabla_s^d Y_t$ denotes the differenced series (Priyangika et al., 2016). Here, ∇_d and ∇_s are ordinary and seasonal difference components (Chang et al., 2012).

3.2.3. Statistical Techniques Used

For this study, R programming is used due to its user-friendliness. To run different statistical tests and generate data visualizations, several packages were installed: readxl, fpp3, tseries, forecast and sarima. The readxl package helps to load the data from Excel to R. The fpp3 package loads packages such as tibble, dplyr, tidyr, lubridate, ggplot2, tsibble, tsibbledata, feasts and fable for time series analysis. The t-series package allows time series analysis and computational finance, and contains stationarity tests. The Sarima package includes functions, classes and methods in time series modelling for ARIMA and related models. The forecast package allows displaying and analyzing univariate time series forecasts, including automatic ARIMA modelling.

In R, three approaches will be used for modelling the data: the ARIMA function, the ARIMA function with the "Approximation=FALSE" argument and Auto. Arima function.

The best-fitted model will be derived by comparing the Akaike Information Criterion (AIC), Corrected Akaike Information Criterion (AICc) and Bayesian Information Criteria (BIC) values of each approach.

Then, the model adequacy will be checked with residual analysis and the Ljung-Box test. Finally, the accuracy of the forecasts will be checked with metrics such as Mean Absolute Percentage Error (MAPE), Root Mean Squared Error (RMSE) and Mean Absolute Error (MAE). Lewis (1982) mentioned in his study that the model provides good forecasting if the MAPE value is less than 20%.

4. Analysis

Data visualizations, modelling and forecasting of the textile and garment exports were done using R Programming Language.

4.1. Visualize the Whole Time Series

Time series plot, seasonal plot and sub-series plot of the data are used to visualize the time series (Figures 4, 5 and 6).

Figure 4: Time Series Plot (2007 January – 2022 December)
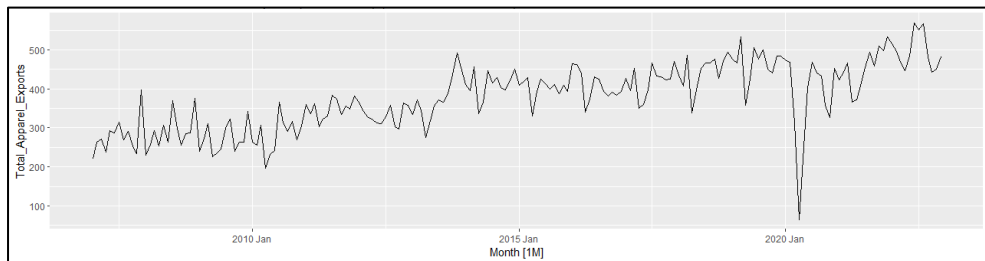
Source: Output of Data Analysis

Figure 5: Seasonal Plot (2007 January – 2022 December)
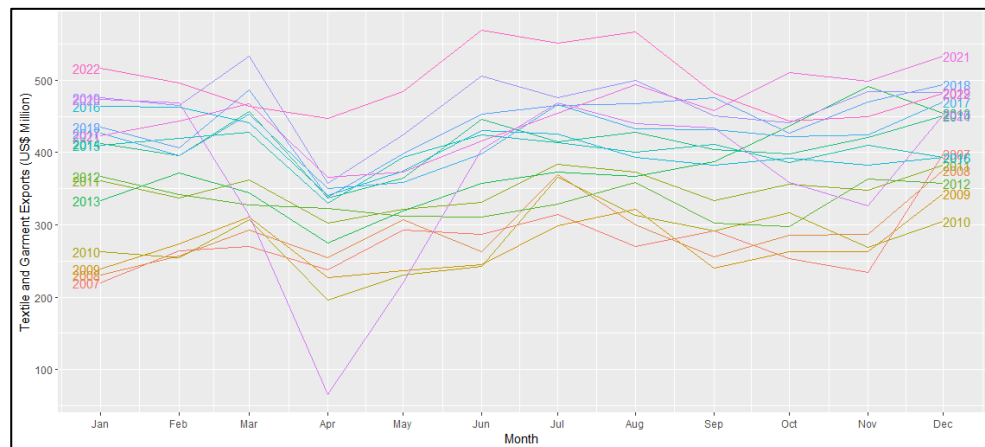
Source: Output of Data Analysis

Figure 6: Subseries Plot (2007 January – 2022 December)

Source: Output of Data Analysis

When visualizing the time series of the exports from January 2017 to December 2022 using the above plots, some seasonal fluctuations and different irregular shocks can be observed.

As per the seasonal and subseries plots, the seasonal impact on textile and garment exports can be clearly identified. As per the above plots, the months of March and December months show high export earnings. The reason for this is the summer, late summer, and early spring seasons of different regions. (Edirisooriya and Senevirathne,2020). However, March 2020 shows a significant drop in export earningsbecause of the COVID-19 pandemic. Similarly, garments and textiles show high export earnings in the months of June, July, and August in general. This is mainly due to the summer season, which falls from June to August in the countries of major Sri Lankan apparel and textile export markets.

As per the plot, in the time series from 2007 to 2022, the textile and garment export earnings (in USD Million) have generally increased with a few exceptions.

According to JAAFSL, over 30% of Sri Lanka's apparel exports are exported to the EU. During the period spanning from 2007 to 2010, under the GSP+ access, Sri Lanka managed to improve Sri Lankan exports to the EU market by 7.96% on average despite the financial crisis followed by a decline in demand in the Europe from 2009 to 2010 (Weekly Political Review,2017). Moreover, after the civil war in Sri Lanka, the country's economy started to stabilize, which also

impacted on textiles and garment exports favourably. (Edirisooriya and Senevirathne,2020). After losing the GSP+ trade concession in 2010, Sri Lankan exports to the EU market increased only by 1.02%. (Weekly Political Review,2017). However, though Sri Lanka regained the GSP+ status in 2017, the EU had entered into trade agreements with many countries, making it competitive and less lucrative for Sri Lanka even under the GSP+ status.

Within the first few months of 2020, when the peak of the COVID-19 outbreak occurred, Sri Lankan apparel and textile exports declined significantly due to lockdowns and high order cancellations. JAAFSL stated that the apparel and textile exports declined by more than 24% to USD 3.93 billion. However, from July onwards, the industry could quickly adapt to the situation and bounce back within a short period, demonstrating an increasing trend, which can also be observed in the above plots.

As the plots depict, the apparel industry continued to grow further in 2021. According to JAAFSL, in 2021, Sri Lankan textiles and garments exports surged by 21.5% at the end of September to USD 3.54 billion. According to the statistics for the year 2021, the EU was the largest export market, accounting for approximately 24.1% of the country's total merchandise exports. In 2021, Sri Lankan textiles and garments export earnings for the months of October, November and December recorded the highest sales ever in respective months in the history of apparel and textile exports. When exploring major incidents that happened during the year 2021 regarding the apparel industry, it is noteworthy to mention China entering into a Memorandum of Understanding (MoU) to lift the Sri Lankan apparel sector and Mila Fashion investing in Sri Lanka to establish new apparel manufacturing facilities in the country.

In 2022, it shows high export earnings of textiles and garments exports. However, from October 2022 onwards, the export earnings have declined. According to the CBSL, this is mainly due to the recession and decline in demand for Sri Lankan apparel and textile exports from its major markets. In addition to that, in the latter part of 2022, economic and political chaos prevailed in Sri Lanka, such as excessive inflation, daily power cuts, and fuel shortages affecting the apparel manufacturers adversely. CBSL statistics showed that in December 2022, Sri Lankan apparel & textiles exports fell by 9.56% yearly to USD 480.28 Million.

4.2. Determining the Stationarity of Time Series

Autocorrelation function (ACF) and Partial Autocorrelation (PACF) plots were used to detect the stationarity of the apparel and textile exports time series (Figures 7 and 8).

Figure 7: Partial Autocorrelation Function (PACF)
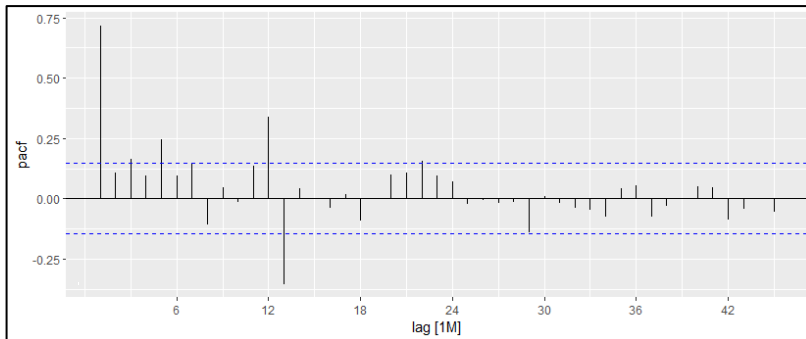
Source: Output of Data Analysis

Figure 8: Autocorrelation Function (ACF)
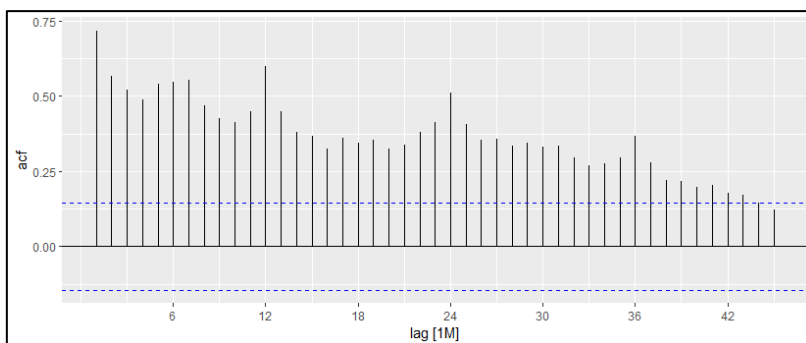
Figure SEQ Figure * ARABIC 8: PACF Plot for Apparel and Textile Series

Source: Output of Data Analysis

As the lags increase, the slowly decaying ACF plot implies that the data is trended. Further, the scalloped shape can be observed with larger autocorrelations for seasonal lags (at multiples of 12 periods) than for other lags, which indicates the seasonality in the data. As per the PACF plot, significant spikes at lags 1, 12, and 13 indicate the presence of a seasonal pattern with cycles of 12 and 13 months. Thus, with both plots, the data shows trend and seasonal behaviour, implying the non-stationarity in the series.

4.3. Fitting ARIMA Model

Since the ARIMA model can handle non-stationarity, the original series (non-stationary) was used for modelling purposes. The best-fitted model was selected

after employing three approaches: ARIMA function, ARIMA function with "Approximation=FALSE" argument and auto. Arima function.

The following table (Table 1) summarizes the generated output of each of the above approaches.

Table 1: Evaluating Different Approaches

Approach	ARIMA Model	Coefficient Value		σ^2	log likely--hood	AIC Value	AICc Value	BIC Value
Using ARIMA Function	ARIMA $(0,1,2)$ $(2,0,0)_{12}$	ar1		1871	-929.74	1869.48	1869.83	1885.42
		ma1	-0.3499					
		ma2	-0.3328					
		sar1	0.3801					
		sar2	0.2984					
Using ARIMA Function with Approximation = FALSE Argument	ARIMA $(1,1,1)$ $(2,0,0)_{12}$	ar1	0.5847	1864	-929.49	1868.97	1869.32	1884.91
		ma1	-0.9666					
		ma2						
		sar1	0.4078					
		sar2	0.2818					
Using auto.arima Function	ARIMA $(0,1,2)$ $(2,0,0)_{12}$	ar1		1871	-929.74	1869.48	1869.83	1885.42
		ma1	-0.3499					
		ma2	-0.3328					

sar1	0.3801
sar2	0.2984

Source: Output of Data Analysis

Based on the above AIC, AICc and BIC values, the second approach, which used the ARIMA function with Approximation = FALSE Argument, has the minimum values for each criterion, especially AICc. Therefore, ARIMA (1,1,1) (2,0,0)$_{12}$ is selected as the best-fitted model to forecast apparel and textile exports in Sri Lanka.

The equation for the model can be written as follows (Equations 2 and 3).

$$(1 - \phi_1 B)(1 - \Phi_1 B^{12})(1 - \Phi_2 B^{24})(1 - B)Y_t = (1 + \theta_1 B)\varepsilon_t \text{ -----------------(2)}$$

$$(1 - 0.5847B)(1 - 0.4078B^{12})(1 - 0.2818B^{24})(1 - B)Y_t = (1 - 0.9666B)\varepsilon_t \text{-- (3)}$$

Where Y_t is total Sri Lankan apparel and textile exports at time t and ε_t is residual at time t.

4.4. Checking the Model Adequacy

4.4.1. Residual Diagnostic Graphs

To determine whether the selected model is adequate, the residual diagnostics of the best-fitted model, ARIMA (1,1,1) (2,0,0)$_{12,}$ were examined (Figure 9).

Figure 9: Residual Diagnostics Graph
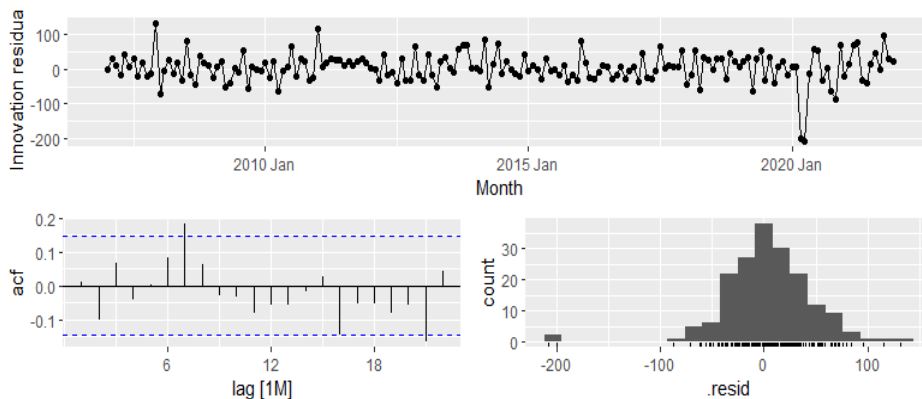
Source: Output of Data Analysis

The time plot of the residuals of the ARIMA (1,1,1) (2,0,0)$_{12}$ model shows that the mean of the residuals is close to zero and the variance of the residuals stays

within a constant band except for two outliers (data points referring to 2020 March and 2020 April). Further, the histogram also seems to be normal if the two outliers are ignored.

Moreover, the ACF plot of the residuals from the fitted model, ARIMA (1,1,1) $(2,0,0)_{12}$ exhibits that all autocorrelations except two small yet significant spikes are within the threshold limits. However, it is still consistent with white noise. To confirm the white noise behaviour of residuals, the portmanteau test Ljung-Box test is employed.

4.4.2. Portmanteau Test Ljung-Box Test

According to Hyndman and Athanasopoulos (2018), the lag value for the test would be taken as twice the period of seasonality, which is 24. The generated output is as follows (Table 2).

Table 2: Ljung-Box Test Output

lb_stat	lb_pvalue
30.4	0.0638

Source: Output of Data Analysis

As per the output, the p-value (0.0638) is greater than the level of significance (0.05), which suggests there is not enough evidence to reject the null hypothesis. Therefore, the residuals of the model are serially uncorrelated.

4.4.3. Plotting the Characteristic Roots of the Model

An invertible model should have all the roots inside the unit circle. For the selected model, all roots have a modulus less than one and lie within the unit circle, therefore, the fitted model, ARIMA (1,1,1) $(2,0,0)_{12,}$ is adequate for forecasting (Figure 10).

Figure 10: Unit Circle
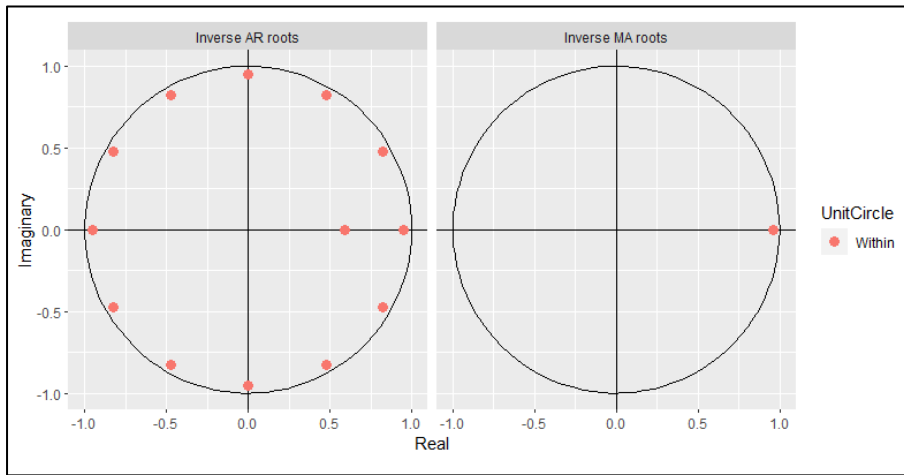
Figure SEQ Figure * ARABIC 10: Inverse Characteristic Roots for the ARIMA $(1,1,1)$ $(2,0,0)_{12}$ Model

Source: Output of Data Analysis

4.5. Forecasting Export Values using the Model

The generated forecasts for the testing period (next 12 months, i.e., from 2022 January to 2022 December) are as follows (Table 3).

Table 3: Point Forecasts for the Testing Period

Data Point	Point Forecast	Lo 80	Hi 80	Lo 95	Hi 95
181	489.03	433.71	544.35	404.42	573.64
182	478.23	413.19	543.27	378.76	577.70
183	433.97	365.36	502.58	329.04	538.90
184	316.98	246.83	387.12	209.69	424.26
185	359.78	288.87	430.69	251.33	468.23
186	427.03	355.67	498.38	317.90	536.16
187	460.04	388.39	531.69	350.47	569.62
188	467.11	395.24	538.98	357.20	577.03
189	450.74	378.68	522.79	340.54	560.93
190	450.46	378.24	522.67	340.01	560.90

191	436.21	363.84	508.58	325.53	546.89
192	485.83	413.32	558.34	374.93	596.73

Source: Output of Data Analysis

The generated forecasts for future values beyond the testing period are as follows (Table 4).

Table 4: Point Forecasts for 2023 January to 2023 December

Data Point	Point Forecast	Lo 80	Hi 80	Lo 95	Hi 95
193	459.66	382.25	537.07	341.27	578.04
194	460.96	381.39	540.53	339.26	582.66
195	449.62	368.93	530.31	326.22	573.03
196	373.37	292.01	454.73	248.94	497.80
197	392.64	310.82	474.47	267.50	517.78
198	432.20	350.02	514.38	306.51	557.89
199	456.55	374.06	539.04	330.39	582.70
200	470.46	387.70	553.23	343.89	597.04
201	453.98	370.96	537.00	327.01	580.95
202	468.55	385.27	551.82	341.19	595.90
203	459.21	375.70	542.73	331.49	586.94
204	489.34	405.59	573.09	361.25	617.43

Source: Output of Data Analysis

The following plot illustrates the actual values and the forecast values for the testing period, i.e., from January 2022 to December 2022 (Figure 11).

Figure 11: Actual Values and the Forecast Values for the Testing Period,
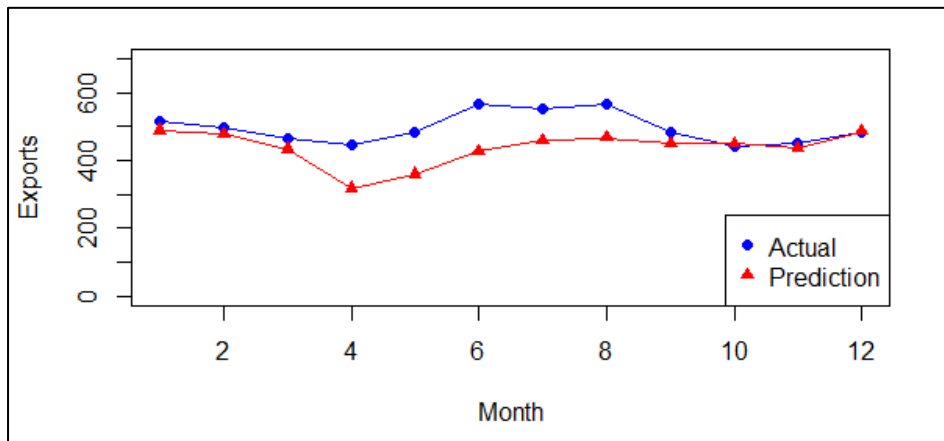
From January 2022 to December 2022

Source: Output of Data Analysis

The plot of the forecasts from January 2022 to December 2023 (24 months) is as follows (Figure 12). According to the plot, it depicts that the forecasts have captured the trend and the seasonal behaviour of the apparel export time series.

Figure 12: The plot of the forecasts from January 2022 to December 2023
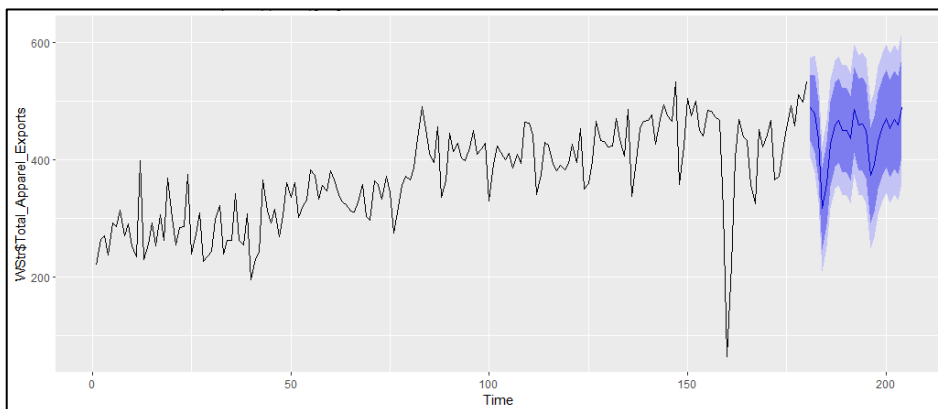
Source: Output of Data Analysis

4.6. Checking Accuracy of the Forecasted Values

The accuracy of the forecasts of the best-fitted model, i.e., ARIMA (1,1,1) $(2,0,0)_{12}$, is measured using metrics such as MAPE, RMSE and MAE). The results are as follows (Table 5).

Table 5: Checking Accuracy of Forecasts

Model	MAPE	RMSE	MAE
ARIMA $(1,1,1)(2,0,0)_{12}$	11.77%	78.57	59.92

MAPE of 11.77% implies that the forecasted export figures would differ from the actual values by approximately 11.77%. This indicates that the forecasting model ARIMA (1,1,1)

$(2,0,0)_{12}$ has an average prediction error of 11.77%. Lewis (1982) mentioned in his study that if the MAPE value is less than 20%, the model provides good forecasting; therefore, the generated forecasts can be considered good forecasts. In calculating RMSE, the difference between forecast and corresponding actual values are each squared, then averaged over the sample and the square root of the average is obtained. The output shows RMSE as 78.57. MAE the average over the test sample of the absolute values of the differences between the forecast and the corresponding actual value, which is 59.92.

5. Conclusion

The fitted ARIMA (1,1,1) $(2,0,0)_{12}$ model did a good forecast of textile and garment exports for the year 2022 and is expected to do so for 2023. Since the model has a MAPE of 11.77%, this model can be used for further forecasting under necessary amendments.
Though the COVID-19 pandemic posed considerable challenges to the industry in the initial phase, it could quickly adapt to the situation and bounce back within a short period, showing a significant improvement in export earnings in the post-COVID period. The generated forecasts would provide valuable insights to the government and other stakeholders when making decisions to stimulate the industry dynamics, considering the impact on the country's economy. However, this study is limited to a univariate analysis of textile and garment exports using past data, though many other factors, such as exchange rates and Free Trade Agreement negotiations can significantly influence on the exports (Lu, 2015).

It is recommended that the ARIMA models should be used only for short-span forecasting, even though the models are fitted with a Mean Absolute Percentage

Error of less than 20%. ARIMA models to forecast exports should be updated at least once in two years to predict for another at most two years.

6. Future Research

In this study, the SARIMA Model was used to produce forecasts, however, they are not capable of handling volatility and nonlinearity presented in data series (Dritsaki, 2018). Therefore, future research can be done to explore the existence of volatility behaviour in the data. This can be captured by GARCH models, variations of GARCH models or hybrid ARIMA-GARCH models as appropriate. In addition, Lu (2015) stated in his study that more accurate forecasting can be done through some computing technological methods such as Artificial Neural Networks.

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TRACK II-FINANCE II

IMPACT OF INTANGIBLE ASSETS AND INTELLECTUAL PROPERTY ANNOUNCEMENTS ON SHAREHOLDERS' WEALTH: EVIDENCE FROM TECHNOLOGY-BASED COMPANIES IN AMERICA

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Abstract

In the modern knowledge economy, intangible assets play a vital role in creating value for shareholders, particularly the wealth of intangible assets and information content of announcements of intellectual property rights for the first time. Thus, measuring and analyzing the impact of intangible assets and IP announcements on shareholders' wealth is a decisive effort in the direction of creating a company's value. In the 21st century, the driving force of creating wealth for companies and economies is the information on innovation in information and communication technology. These paradigm changes have induced, firms to increasingly adapt to technological advancement and innovations in the recent past. Therefore, this paper aims to shed light on how intangible assets and IP announcements impact on shareholders' wealth of the world's top eight (08) brands, which are American-based technology companies. The IP portfolios and the announcements of intellectual property rights for the period 2005 to 2019 were considered for the analysis. The findings revealed that goodwill and patent were showing a positive significant impact on the shareholders' wealth, while trademarks and trade secrets were indicating a positive, however, insignificant impact on shareholders' wealth. Further, IP announcements significantly impacted on the shareholders' wealth followed by abnormal returns in the short run. This paper, therefore recommends that the shareholders of technological firms can obtain higher returns through the Patent and Goodwill, and further justifies that they can maximize the shareholders' wealth through the IP announcements. The study also directs the research literature into a new direction towards identifying the impact of intellectual property announcements on shareholders' wealth of industry of technology. Further, the findings of current research will assist in forecasting the future development vision of information technology companies based on intangible assets.

Keywords: Event Study, Intangible Assets, Intellectual Property Announcements, Shareholders' Wealth.

1. Introduction

The investment helps companies improve their competitive abilities and, therefore, to grow the shareholder's wealth, which can be presented in two ways. The first type is a tangible asset, and the second is an intangible asset. The traditional industrial age has been replaced by knowledge-based economies, with the highest concentration of development and protection of intangible assets (Chareonsuk & Chansa-ngavej, 2015). This shift has an important implication for organizations because intangible investments are growing faster than tangible investments in several countries (Borgo *et al.*, 2012). Obviously, intangibles such as computerized information, innovative property, and economic competencies are currently considered more significantly important to enhance the firms' performance than tangible assets (Schautschick & Greenhalgh, 2016). In the 21st century, intangible assets have become the dominant factor for maximizing the revenue and profits of organizations, and it becomes major value drivers for companies in many industries (Li & Wang, 2014). The measurement, analysis, and management of intangible assets are decisive efforts in the direction of understanding and improving value creation at different economic levels and sectors.

Especially as a vital component in assets, intellectual property has become a significant factor in enhancing the economic and financial performance of companies (Schautschick & Greenhalgh, 2016). When an intangible asset is protected by law, it becomes an intellectual property right (IPR), and IPRs are, therefore considered a group of intangible assets that can be enforced through the law (WIPO, 2019). The tendency to adapt to IPRs is reflected by their increasing importance, where investors can obtain higher returns through innovations. Therefore, the concentration in the IPRs has become more crucial; particularly by looking at the effect of a firm's IPR on stock market performance, it can be said that the companies are highly focused on IPRs with the purpose of obtaining maximum abnormal returns through this (Ferdaous & Rahman, 2019). As a result, the current study focuses not only on the influence of intangible assets on value but the effect of intellectual property announcements on stock prices. Moreover, the authors intend to consider the IP announcements based on the technological advancements of companies. However, recently, the majority of studies have mainly considered the non-technological intangibles of companies. However, rapid globalization and the deregulation of the world have brought competition to the forefront as one of the most significant factors that drive the survival of a business industry (Andonova & Guluiermo, 2016). Therefore, the salient feature of the knowledge economy is the high adaptation of technological advancement and innovation and the majority of those innovations are of an intangible nature. For example, compared with other sectors the technology sector represents 91% of intangibles globally, and in the

USA, the technology sector accounts for 98% of intangibles (Brand Finance, 2019). Moreover, organizations achieve sustainable competitive advantage and superior shareholder returns through intangible resources such as brand equity, new product capability, superior technologies, patents, trademarks, copyrights, and specialized knowledge. Hence, this paper intends to substantiate the importance of intangible assets in creating value for technology-based companies which are mainly housed in the US.

It is well documented that the most influential framework for measuring the contribution of IP announcements on shareholders' wealth is the event study methodology. As per MacKinlay (1997), an event study is the standard method of measuring stock price reaction to the arrival of new information or announcements to the market. Even though most researchers have focused the stock price behavior around the event, such as dividend announcements, changes in accounting rules, and changes in the severity of regulations and money supply announcements, studies have not been conducted to examine the changing pattern of stock prices around the event such as intellectual property announcements. Given the importance of intangible assets and firm IP announcements, this paper aims to investigate the impact of intangible assets and intellectual property announcements on shareholders' wealth as measured by the market value-added approach and abnormal returns of companies. For the said purpose, this paper enhances the following objectives.

1. To examine the impact of the intangible asset on shareholders' wealth of top American technology companies.
2. To examine the impact of intellectual property announcements on shareholders' wealth of top American technology companies.
3. To determine the dominant technology type of each company based on the categorization of technological advancements of companies

2. Literature Review

Currently, the economies of many countries are moving very fast in the rise of globalization and increasing industrialization. In a digital and knowledge-based economy, intangible assets are predominant and have become key success factors in sustaining the business. Therefore, companies fix mussels with more intangible assets in their asset class. This new trend induced the researchers to shed light on how intangible assets bring more value to the firms. For example, Andonova & Guluiermo (2016) documented that it is weightless wealth that generates real profit. This further amplifies the contention made by (Gouri *et al.*, 2012), revealing that the number of patent applications has doubled in the 21st century. It brings reason to believe that companies' concentration on innovation and IP protection creates more value for them. Moreover, (Karius & Tim, 2016)

highlight that in the perspective of economic contribution to the wealth and growth of countries, the IP plays a remarkable role.

Moreover, firms often use innovation and disruptive technologies to become dominant players in the market. As per Bradley *et al.* (1998), shareholders' value is another term for the total value of equity of a firm or its market capitalization. The market capitalization of a publicly traded firm is highly transparent, and it is the number of shares listed on the market multiplied by the average price per share. Importantly, Volkov and Garanina (2017) explored the importance of Intangible Assets (IA) in the knowledge-based economy based on 43 Russian companies covering the five fields : mechanical engineering, extractive industry, engineering, communication services, and metallurgy. The findings proposed emphasized there is a positive relationship between the average market value of company assets and the 5-year average fundamental values of tangible and intangible assets.

Furthermore, Richard *et al.* (2007) pointed out that intangible assets other than goodwill, which include the value of patents, copyrights, licenses, and trademarks, have a significantly positive impact on shareholders' wealth, investigating the impact of intangible assets and expenditures on corporate shareholder accountability based on 1,657 manufacturing. The dominant characteristics of intangible assets in the marketplace now have become one of the major causes of the volatility of stock prices. The response announcement of new intangible assets is a positive piece of information for the market participants. For example, Alsinglawi and Aladwan (2018) found the intangible assets on the volatility of stock prices as an important indicator of firm value. Obviously, these researchers suggest that firm value is not only restricted to the value of the physical assets but also the non-physical assets.

Another study has been conducted by Tania *et al.* (2014) to analyze the relationship between financial performances, intangible assets disclosure, and value creation within Brazilian and Chilean information technology companies. This research stated that wealth creation in business is related to intangible assets and also emphasized that intangible assets are responsible for better financial performance and value creation. Thus, companies possessing more intangible assets tend to create more value for their shareholders. Basso *et al.* (2014) have conducted research based on the impact of intangibles on value creation. For measuring intangibles, the research has taken into consideration the sectors of software, equipment, and technology for computing in the United States. Basically, this study consists of a comparison between the software sector and the hardware sector. Therefore, the sample comprised 792 software companies and 591 hardware companies. According to the findings, research and development expenditures and selling and administration expenditures are

strongly correlated with the shareholders' return in the software sector companies.

In the dynamic and challenging business world, the factors that affect the firm value can be changed dramatically. Consequently, as a sub-component of intangible assets, intellectual property rights (IPRs) have a significant role to play within the organization in terms of competing with their reveals. It provides the regulatory construct to overcome market failures by providing an incentive for firms to invest in IPs and enabling firms to capture the benefits of innovations and product developments. This is largely taken as a given by policymakers and impacts on reflecting the complexity of the relationship between creation and innovation processes, IPRs, and the market value of companies (Withers, 2006). According to specific announcements of intellectual properties it can affect the changes in the stock prices of a company. Investors and other stakeholders are highly aware of the communication of new information to the market; therefore, it can be identified whether the market positively or negatively reacts to specific announcements (Dosso & Vezzani, 2019). Share prices of every company change rapidly at every minute.

Most of the companies have been inspired by IP announcements because of adding new value to the company. The IP announcements are highly related to innovations and technological advancements as well. There is a higher probability of enhancing companies' returns against the flow of new information. As per Bessen and Meurer (2007), the IT industry has more of an effect compared to those in other industries for the following reasons. Bessen and Meurer (2007) performed an event study to measure the effect of patent litigation with large samples, showing that the impact of patent litigation on the value of a firm depends on the firm's characteristics, such as the size and the firm's financial conditions.

The basic requirement of creating shareholder value is ensuring the effective flow of information within the organization. Hence, it is important to determine how new information is negatively or positively influenced. Rappaport (1986) stated that the behavior of abnormal returns of companies reflects whether the wealth of a firm is increased or decreased. Furthermore, Mackinlay (1997) has stated that the best method to measure the changing pattern of abnormal return is event study methodology. Utilizing 30 firms and considering 600 events, this research is conducted using the Dow Jones Industrial Index. The adapted model to calculate the abnormal returns of each event was the Market model. It leads to an increased ability to detect event effects immediately (Brown & Warner, 1985). Using that market model, Mackinlay has analyzed the behavior of Abnormal Return, Average Abnormal Return, and Cumulative Average Abnormal Return, considering the daily share prices and market indexes. However, evidence from the literature proves that there is limited attention

provided in terms of quantifying the impact of intangible assets on shareholders' wealth; therefore, this study attempts to fill that gap in the understanding of the effect of intangible assets and intellectual property announcements on shareholders' wealth.

3. Data and Methodology

The study is confined to analyzing the impact of intangible assets and intellectual property announcements on shareholders' wealth considering the sample of eight (08) top branded American technology companies that are listed on the New York Stock Exchange (NYSE). The considered intangible assets of the study are namely, goodwill, patents, trademarks, and trade secrets. In here shareholders' wealth is measured by using the Market Value Added (MVA) approach. Further, forty intellectual property (IP) announcements are considered to analyze the impact of IP announcements on shareholders' wealth. Here, market reaction around each announcement is measured using the calculated daily abnormal returns. The study covers the period from 2005 to 2019.

3.1 Data

The research was conducted using quantitative data obtained from valid secondary sources. Considering the announcement date of each intellectual property, monthly and daily share prices and daily stock indexes are gathered. Those data are obtained from secondary sources such as annual reports, Yahoo Finance (markets indexes of New York Stock exchange: Standards & Poor's 500, share prices), patent scope, Espacenet, World Intellectual Property Report (WIPO), and websites of respective companies. The sample consists of the top eight (08) American technology companies. According to the importance awarded to information and communication technology, the current knowledge economy is highly adapted towards technological advancement and innovations, and the majority of those innovations are intangible in nature. For example, compared with other sectors the technology sector is 91% intangible in the world context, and taken as countries, the USA's technology sector is 98% intangible (Brand Finance, 2019). This induced the study to consider the sample as technology companies based on the highest brand value and availability of data. Most importantly, the majority of top global companies with the highest brand value are American technology companies, which are listed on the New York Stock Exchange. The list of companies is as follows.

Table 1: Sample of Companies and Intellectual Property Announcements

Company Name & Brand Value	Intellectual Property Announcements	Date of Announcement
Apple Incorporation $ 310Bn	Touch Screen device method, and graphical user interface for providing maps, directions, and location-based information	2008-12-31
	Touch screen device, method and graphical user interface for moving on-screen objects without using a cursor	2012-02-22
	Port Discovery and message delivery in a portable electronic device	2014-12-04
	Conversion management system, method, and computer program	2018-10-17
	Device, method, and graphical user interface for managing folders	2019-08-08
Google Incorporation $ 309Bn	Fault-tolerant data storage on photographs	2008-05-27
	Method for searching media	2008-10-14
	Automatic transliteration of a record in a first language to a word in a second language	2011-07-21
	Method and system for automatically creating an image advertisement	2012-11-13
	Stand assembly for an electronic device providing multiple degrees of freedom and built-in cables	2019-10-24
Microsoft Corporation $251 Bn	Method, apparatus, and user interface for managing electronic mail and alert messages	2008-03-06
	Changing the number of machines running the distributed hyperlink database	2012-12-16
	Embedded Web viewer for presentation applications	2017-11-02
	Software application creation for non-developers	2018-09-05
	Updating software components through online stores	2019-10-17
Facebook Incorporation $159 Bn	Urgency notification delivery channel	2015-11-27
	Protecting personal information upon sharing a personal computing device	2016-09-22
	Voicemail proxy server	2017-06-29

	Automated location check-in for geo-social networking system	2018-04-17
	Low power high frequency social updates for mobile devices	2019-05-09
IBM Corporation $86 Bn	Multiprocessor system snoop scheduling mechanism for limited bandwidth snoopers that uses dynamic hardware/software controls	2006-05-16
	System and method for multicore communication processing	2010-02-04
	Method for operating a computer cluster	2016-01-14
	Method and system for user-aware wireless video display	2017-06-08
	Method of invisibly embedding and hiding data into soft-copy text documents	2019-07-18
Intel Corporation $ 32 Bn	Verifying the integrity of a media key block by storing validation data in the cutting area of the media	2006-08-15
	Language-dependent voting-based user interface	2007-10-18
	Method and apparatus for migrating virtual trusted platform modules	2011-12-06
	Method and apparatus for remotely provisioning software-based security coprocessors	2016-11-22
	Techniques to pre-link software to improve memory de-duplication in a virtual system	2018-01-09
Cisco Corporation $ 29 Bn	System, method, and software for a virtual host bus adapter in a storage-area network	2007-07-03
	Rich multi-media format for use in a collaborative computing system	2009-12-22
	Message delivery coordination among multiple messaging media	2011-01-04
	Controlling computer program extensions in a network device	2012-08-07
	Address resolution suppression for data center interconnect	2017-01-17
Oracle Corporation $26 Bn	System and method for automatic generation of HTML-based interfaces, including alternative layout modes	2007-05-08
	System and method for searching data partially displayed on a user interface	2008-05-27

	Knowledge-intensive data processing system	2015-09-10
	External platform extensions in a multi-tenant environment	2018-07-31
	Techniques for similarity analysis and data enrichment using knowledge sources	2019-02-19

Source: World Intellectual Property Database and Brand Finance, 2019

3.2 Defining Variables

Intangible assets: Intangible assets are non-material sources of creating a company's value based on the employees' capabilities, the organizations' resources, the way of operating, and relations with the shareholders (Andonova & Guluiermo, 2016). According to previous studies such as Richard *et al.* (2007) and Li and Wang (2014), intangible assets are the key mechanism of creating value for companies in this knowledge-based century.

Goodwill: Goodwill is an intangible asset associated with the purchase of one company by another. It is the premium that is paid when a business is acquired. If a business is acquired for more than its book value, the acquiring business is paying for intangible items. (Wang and Chang, 2005).

Patent: A patent is an exclusive right to market a particular invention. It is considered an intangible asset, and it provides long-term value to the owning entity. Patents are generated for new, useful, and non-obvious inventions of the companies, and they will be affected to create the wealth of shareholders (WIPO, 2019). In recent years the information technology industry has been highly aware of patents, and IT firms have a higher probability of adopting the patent legislation because each IT devices, technological advancement, or innovations need to acquire a right of patent (Karius & Tim, 2016).

Trademark: A trademark is an intangible asset that legally prevents others from using a business's name, logo, or other branding items. It is a design, symbol, or logo used in connection with a particular product or a business. To maintain a good reputation, trademarked companies will often work harder to provide quality services and products. According to Richard *et al.*, (2007), investing funds in intangible assets such as patents, trademarks, copyrights, and licenses is most valuable. The reason is those intangible assets have been impacted positively on the shareholders' value of the firm.

Trade Secret: Trade secrets are the types of intellectual property rights on confidential information that may be sold or licensed. It comprises formulas, practices, processes, designs, instruments, patterns, or compilations of information that have inherent economic value. When intellectual property types are considered, trade secrets are one of the most common types of IP that

are used by the company (WIPO, 2019). It adds value to a business. Today, they are gaining attraction as an effective way to protect certain intellectual assets. (Wang and Chang, 2005).

Shareholders' Wealth: Shareholder wealth is the collective wealth conferred on shareholders through their investment in a company. Companies can determine shareholders' wealth by looking at overall company value in terms of current value per share and the number of shares issued. Therefore, the share price is the direct measure of measuring the shareholders' wealth (Fisher, 1995). As per Stewart (1990) and Dekker et al. (2012), the current study has considered the Market Value Added (MAV) approach to calculate shareholders' wealth to analyze the impact of intangible assets on shareholders' wealth. MAV is the difference between the market value of shares and the value of shareholders' equity. Here, the market value of shares is calculated by multiplying the number of shares outstanding and the market price per share. Similarly, the value of shareholders' equity is the difference between total assets and total liabilities.

3.3 Model Adapted the Study

For analyzing the data, descriptive statistics were first performed to describe the basic features of variables, and Pearson correlation analysis was performed to measure the linear correlation between independent and dependent variables. Finally, panel data regression and event study methodology were employed to achieve the research objectives.

3.3.1 Panel Data Regression

To observe the impact of intangible assets on shareholders' wealth of selected eight technology companies, a panel data analysis is employed to build the regression model. Panel data analysis is a statistical method widely used in social science, medical science, and econometrics to analyze multi-dimensional data involving measurements over some time (Panel analysis, 2018). The data used in the research is derived from secondary sources and using the panel data regression model, the impact of intangible assets on shareholders' wealth was analyzed. In Panel data regression, Common Effect Model or Pooled Least Square (PLS), Fixed Effects Model (FE), and Random Effects Model (RE) are available for analyzing the data (Panel analysis, 2018). Three main tests are commonly applied to select the most appropriate regression model for examining the impact of intangible assets on shareholders' wealth. One is the F Test to decide which model should be used between the FE Model and the PLS model. The lagrange Multiplier (LM) test is used to determine the best model between the RE Model and the PLS Model. Moreover, the Hausman test is used to determine the best model between the FE Model and the RE Model. This study uses the E-

views statistic software is used to figure out the best regression model. The common panel data regression model is given as follows:

$$SW_{it} = \beta 0 + \beta 1 GW_{it} + \beta 3 PA_{it} + \beta 4 ITM_{it} + \beta 5 TS_{it} + \varepsilon t$$

In here, SW is shareholders' wealth, GW is goodwill, PA is patent, TM is a trademark, TS is trade secret, and εt is an unexplained variable or error term. Furthermore, i is the entity and t is the time.

3.3.2 Event Study Methodology

The event study methodology is the widely accepted methodology for analyzing stock market behavior. According to MacKinlay (1997), the primary use of event study methodology is to estimate the impact of an event on the company value using financial data. Essential for the event study is the abnormal return compared to the normal return. Short-horizon event studies focus on the announcement effects of a certain event. Szalavetz (2017) has stated that event studies are useful because, given rational markets, the effect of an event would be reflected in stock prices immediately. As per MacKinlay (1997), the event window usually consists of multiple days in cases where daily data is used. The day or days before the event day should also be included in the event window since information about the event has been acquired before the event day. Moreover, Pokrajcic (2012) has emphasized that 30-60 observations are usually viewed as a minimum requirement to get significant results when running regressions. Therefore, the study has initiated the event study methodology to examine how stock prices change according to when new information about IP announcements comes to the market. It examines the stock market's response to events that are often related to the release of information to the stock market. However, the researcher has considered the forty (40) intellectual property announcements of eight selected technology companies including five intellectual property rights from each company.

In this paper, abnormal returns were calculated to examine the impact of IP announcements on shareholders' wealth, , and it is the difference between actual returns and expected returns. MacKinley's market model has been considered to estimate the expected returns relative to each IP announcement (MacKinlay, 1997).

$$E (R_{at}) = \alpha_i + \beta_i R_{mt}$$

Here, E (Rit) is the expected return for company i in period t, and Rmt is the return of the market portfolio. α_i and β_i are the market model parameters used by the regression model, where α_i is constant, and β_i is the estimated systematic risk of share i. Expected returns are estimated using the Estimation window of -80 to -41 days. Those returns are estimated using the daily share prices and S&P 500 market indexes. The published date of an intellectual property right is the

event date, which is indicated in zero (0). Two event windows are considered for the study. The first window is considered as before and after when the particular event is happeneds (-40 to +40), which means 40-day event window and the second is the 10 day event window (-10 to +10) by incorporating the theory of Efficient Market Hypothesis.

Further, Average Abnormal Return (AAR) and Cumulative Average Abnormal Return (CAAR) are used to measure the impact of intellectual property announcements on stock return changes. The individual securities' abnormal return will be aggregated for the event period and divided by the number of events in order to calculate the AAR for all securities over the event window (MacKinlay,1997). CAAR is cumulates of abnormal returns over a specified period around the event date. To examine the aggregate return over the event window, the cumulative abnormal return is used. Finally, to ensure that calculated abnormal returns are statistically significant or not, it is necessary to apply the statistical test for this. Mainly there are two statistical tests: parametric test and a non-parametric test. Under the parametric test, the most common test to examine the significance of CAARs is the t-test (Browner and Warner, 1985).

4. Analysis

This section deals with the analysis and findings of research results. Initially, descriptive statistics and Pearson's correlation analysis were conducted. Afterward, the study was directed to analyze the data using two main methodologies, panel regression, and event study methodology for the purpose of achieving the research objectives.

Table 2: Descriptive Statistic of variables

VARIABLES	OBSERVATIONS	MINIMUM	MAXIMUM	MEAN	STD. DEV.
SW	120	10.42964	13.73626	11.81686	0.738677
GD	120	4.564344	11.20446	9.450694	1.245285
PA	120	7.876638	12.77198	10.68279	0.917907
TM	120	3.555348	9.133675	6.920925	1.142538
TS	120	6.086186	10.06875	8.948938	0.755282

Source: E-views Output

As per the values given in Table 2, the average shareholders' wealth is 11.8168, and it fluctuated between a minimum value of 10.4296 and a maximum value of 13.7362. The standard deviation of SW is 0.7386 which is a very low value. It indicates a low degree of variation in a set of variables. But it is not closer to the mean value. The mean values of goodwill, patent, trademark, and trade secret

are 9.4506, 10.6827, 6.9209, and 8.9489 respectively. These mean values stand for the average values of the study's considered variables. The standard deviation measures the amount of variation or dispersion from the average. A low standard deviation shows that the data points tend to be very close to the mean, and a higher standard deviation indicates that the survey data points are spread out over a large range of values.

Table 3: Pearson Correlation Analysis of Variables

	SHAREHOLDERS' WEALTH	GOODWILL	PATENT	TRADE MARK	TRADE SECRET
SW	1.0000				
SIG					
GW	0.2096	1.0000			
SIG	0.0216				
PA	0.8222	-0.0153	1.0000		
SIG	0.0000	0.8681			
TM	0.2802	0.5022	0.2662	1.0000	
SIG	0.0019	0.0000	0.0033		
TS	0.5295	0.5928	0.4415	0.5786	1.0000
SIG	0.0000	0.0000	0.0000	0.0000	

Source: E views output

The Table shows that goodwill, patents, trademarks, and trade secrets are positively associated with the shareholders' wealth. The value of Pearson's correlation of goodwill and trademark is 0.2096 and 0.2802 respectively, which indicates the low degree of a positive relationship between goodwill and trademark with a wealth of shareholders. Trade secret indicates a moderate degree of a positive relationship between shareholders' wealth, which is a 0.5295 correlation. The value of the Pearson correlation of patents is 0.8222, which means there is a strong positive relationship between patents and shareholders' wealth. The p-value of those five variables is less than 0.05. It demonstrates that goodwill (0.0216), patent (0.000), trademark (0.0019), and trade secret (0.0000) are statistically significant at a 5% confidence level and significantly impact the shareholders' wealth.

4.1 Panel Data Regression Analysis

Table 4: Panel Data Regression Analysis of Variables

VARIABLES		PLS	FE	RE
GW	Coefficient	0.1231	0.1888	0.1326
	P Value	0.0025	0.0066	0.0139

PA	Coefficient	0.6204	0.4635	0.5334
	P Value	0.0000	0.0000	0.0000
TM	Coefficient	-0.0659	0.0304	0.0212
	P Value	0.09983	0.4147	0.5524
TS	Coefficient	0.1081	0.2035	0.1156
	P Value	0.1441	0.0338	0.0541
R2		0.7358	0.8988	0.6285
ADJ. R2		0.7242	0.8719	0.6155
F STATISTICS		0.0000	0.0000	0.0000

Source: E -Views output

The panel data regression results were obtained by conducting the F test, LM test, and Hausman test. The most appropriate model for the study was selected, which is the Random Effect Model (RE). According to the Model outcome of the RE model, the coefficient of goodwill is 0.1326, which means an increase of 1 million of goodwill results in an increase of 0.1326 million of shareholders' wealth. The coefficient of the patent is 0.5334, which means an increase of 1 million patents results in shareholders' value being increased at 0.5334 million. As the same, the coefficient of the trademark is 0.0212, which means an increase of trade secrets by 1 million, resulting in shareholder's wealth being increased by 0.0212 million. Also, the coefficient of a trade secret is 0.1156, which means an increase of 1 million trade secrets results in shareholders' value being increased at 0.1156 million. Overall, the coefficients of those five variables indicate positive values. However, according to the p-value of each coefficient, only goodwill (0.0139) and patent (0.0000) show a significant impact on shareholders' wealth because its calculated P-value is less than the critical P value which is 0.05 under a 5% confidence level. However, trademark (0.5524) and trade secret (0.0541) are not statistically significant. Moreover, the R square is 62.85%, and the adjusted R square is 61.22%. It demonstrates that the model can explain more than 61% of the variation in shareholders' wealth. Finally, to examine the impact of intangible assets on shareholders' wealth, the most appropriate model is the Random Effect Model (RE). According to the findings, Goodwill and patents indicate a positive significant impact on shareholders' wealth. Trademarks and trade secrets indicate a positive, however, insignificant, impact on shareholders' wealth.

4.2 Event Study Analysis

As per the results obtained from the event study analysis, the following graph illustrates the changing pattern of abnormal returns with the announcement of intellectual properties.

Figure 2: Average Abnormal Returns and Cumulative Average Abnormal
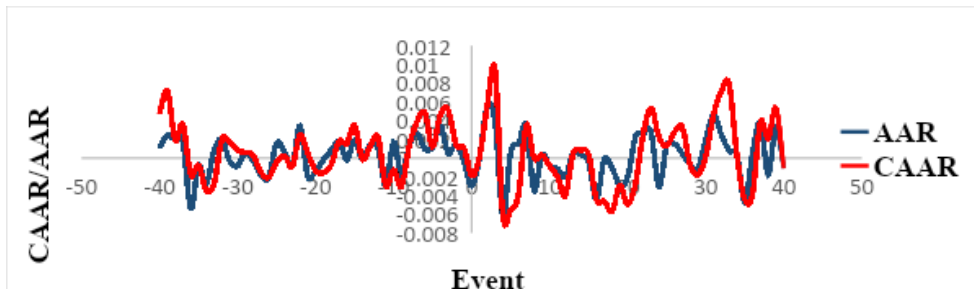
Returns of 40 days' event window

Source: Output of Data Analysis

Figure 2 shows the movements of AAR and CAAR relative to the event window. In this study, the event window is chosen as -40 days through 0 to +40. Here, 0 depicts the announcement date of a particular intellectual property, -40 is the 40 days' time period before the announcement date, and +40 is the 40 days after the announcement date. As illustrated in Figure 2, AAR and CAAR values fluctuate around zero. The behavior of CAAR and AAR indicates a similar pattern.

Before coming to the information about the IP announcements into the market, it shows the large positive values of CAAR and small negative values of CAAR. However, after the event, a significant fluctuation in CAAR can be seen. Further, within the period of 0 to +40 CAAR values rapidly increased and then rapidly decreased. Two days after the event (+2), there was a rapid increase in CAAR and AAR, which is 0.004. Subsequently, CAAR and AAR drastically declined up to the negative level, which indicates that 4 days after the event (+4) and it is the largest decrement of CAAR and AAR during the period. Overall, there is no stable level of CAAR and AAR. As a result, it can be observed that the market has not positively reacted to the IP announcements to a considerable extent.

Finally, considering the t-statistics of CAAR, if the CAAR value is greater than 1.96 (t table value) under the 5% confidence level within the 40 days after the publication of intellectual properties, t- statistic of CAAR is insignificant. It means those intellectual property announcements are not being able to influence the market. However, when the American stock market is considered,

it is a very efficient market. Therefore, according to the theory of Efficient Market Hypothesis it can be recommended that, when new information comes into the market, it is immediately reflected in stock prices.

Figure 3: Average Abnormal Returns and Cumulative Average Abnormal Returns of 10 Days Event Window
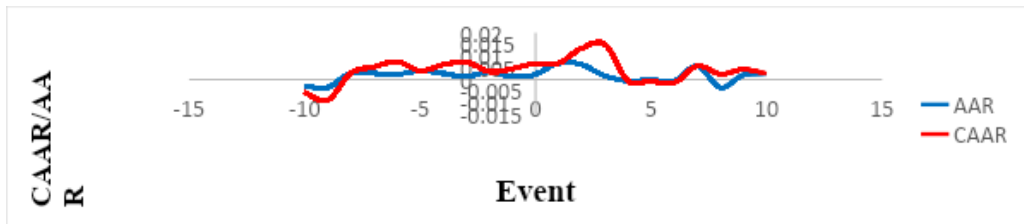
Source: Output of Data Analysis

Table 5: Average Abnormal Return, Cumulative Average Abnormal Return and t-statistic of CAAR for -10 Days and +10 Days

Period	AAR	t-statistics of AAR	CAAR	t- statistics of CAAR
-10	-0.00265	-0.272290276	-0.00545	-0.632131658
-9	-0.00339	-0.070163371	-0.00884	-1.080542811
-8	0.002764	0.112261142	0.002764	0.358162554
-7	0.002649	0.186528592	0.005413	0.749901062
-6	0.00229	-0.109557541	0.007703	1.152624432
-5	0.003808	0.155132205	0.003808	0.624162052
-4	0.002599	-0.015382924	0.006408	1.174193168
-3	0.001195	0.044010563	0.007603	1.608764502
-2	0.003429	-0.021074392	0.003429	0.888695381
-1	0.001218	-0.310041382	0.004647	1.703175251
0	0.002267	-0.306957513	0.006914	2.533982938
1	0.007067	-0.414217538	0.007067	2.589950502
2	0.006414	0.358162554	0.013481	3.493673776
3	0.001635	0.367009186	0.015116	3.198585279
4	-0.00057	0.34263871	-0.00057	-0.104112708
5	-0.00014	0.624162052	-0.00071	-0.1164238
6	-0.00073	0.476358779	-0.00144	-0.216065315
7	0.005812	0.252923019	0.005812	0.805041285
8	-0.00344	0.888695381	0.002374	0.307557078
9	0.001984	0.44637019	0.004357	0.532317612
10	0.002477	0.830807686	0.002477	0.287089428

Source: Microsoft Excel output

Table 5, depicts the AAR, CAAR, and t- statistics of AAR and CAAR within the time period of 10 days before and after the IP announcements. The pattern of positive CAAR and AAR starts from 8 days before the announcement day, and returns are positive up to 7 days after the announcement while they are negative for only 5 days. In here, CAAR and AAR values from the event date (0) to 3 days before the event (+3) are shown large positive values while showing a significant impact on the shareholders' wealth. That means the CAAR values of the event date (0) and the next 3 days, respectively, 0.006, 0.007, 0.013and 0.015, and those values are statically significant at 5% confidence level which is 2.533, 2.589, 3.493, and 3.198. Thereafter, starting from 4 days after the event (+4), both AAR and CAAR values are decreased while reaching the lowest AAR value during the period. However, CAAR values are positive from +7 day to +10 day, it can be recovered the largest negative values. The positive and significant AAR and CAAR indicate that the investors and other stakeholders perceive the intellectual property announcement because they have the ability to earn abnormal returns. Especially on the second day after the announcement indicated that the highest AAR and CAAR values and the highest significance level during the event window. That means within 10 days after the date of the intellectual property announcement, the market positively reacted within a shorter time period, considering the market is highly capitalized and efficient. The reason is that if the market is efficient, it states that when new information comes into the market, it is immediately reflected in stock prices.

Table 6: Abnormal returns (AR) and t-test value of considered IP announcements

Company Name		IP 1	IP 2	IP 3	IP 4	IP 5
Apple Incorporation	AR	0.4382	0.0252	0.0037	0.0086	0.0104
	t-test	2.3131	2.2591	-0.2224	0.4289	1.1477
Google Incorporation	AR	0.0080	0.0496	0.0137	0.0087	0.0004
	t-test	1.1577	1.4491	-0.4098	0.0601	0.1675
Microsoft Corporation	AR	0.0030	0.0177	0.0124	-0.0050	0.1007
	t-test	0.3196	0.2105	0.1746	1.3635	2.7605
Facebook Incorporation	AR	0.0478	0.1628	0.0595	0.0183	0.0054
	t-test	-0.2314	2.1284	0.4566	0.7178	0.0286
IBM Corporation	AR	0.0097	0.0039	0.0140	0.0074	0.0118
	t-test	-0.5576	1.9769	1.1406	0.7815	0.6548
Intel Corporation	AR	-0.0029	-0.0100	0.0057	0.0115	-0.0327
	t-test	0.1979	1.0421	0.6883	1.6413	-2.0931
Cisco Corporation	AR	0.0003	-0.0012	0.0014	0.0302	-0.0046
	t-test	0.0332	-0.2060	3.1366	1.6507	-0.4857
Oracle Corporation	AR	-0.0017	0.0210	0.0127	-0.0085	0.0021
	t-test	-0.2766	1.1455	0.2829	-1.1255	0.3807

Source: Microsoft Excel output

Table 6, shows the abnormal returns and t-test values of considered IP announcements. Here, IP 01 to IP 05 indicates each company's intellectual property announcements. This analysis assists in determining the most dominant technology intellectual property rights of each company. This paper also looks at types of technological advancements. In Apple Inc., among five IP announcements, IP 01 and IP02 show higher positive abnormal returns compared with the other three IP announcements, and they are statistically significant, and those two IPs are in the category of "multi-touch technology". According to this, it can be assumed that in the period from 2008 to 2012, the dominant technology type of Apple Inc. was multi-touch technology. In Microsoft, IP 05 indicates a higher abnormal return than the other four IPs, and it is statistically significant. As per this result, this IP belongs to the category of "software development, and it demonstrates that in 2019, the most popular technology type of Microsoft is software development. Similarly, in 2016, the most demotic technology of Facebook Inc. was software development because IP 02 contributes to obtaining the highest abnormal return of this company and is statistically significant. Moreover, according to the highest abnormal returns and level of significance, "artificial intelligent-powered robot microscopes technology" was the dominant technology of IBM in 2010. When considering the behavior of abnormal returns of Oracle, with respect to the five selected IPs, "digital assistant for personalized interactions technology" is the technology that attracted to the market in 2012. Considering the Google, Intel, and Oracle corporations, even though the t-test values are not statistically significant, the researcher has considered the highest abnormal returns which are obtained by each IP announcement. It is stated that the popular technology area of Google is artificial intelligence discovered modules in 2008, other two companies have captured the market through software development and machine learning technology in the year 2016 and 2008, respectively.

5. Conclusion

For the purpose of analyzing the impact of intangible assets on shareholders' wealth, the paper assessed the impact of goodwill, patents, trademarks, and trade secrets on shareholders' wealth. The study also directs the research literature into a new direction towards identifying the impact of intellectual property announcements on shareholders' wealth of selected top eight companies within the global technology industry. Even though the previous studies have stated different outcomes, the current research indicates that only two intangible assets have shown a positive significant impact on shareholders' wealth, namely goodwill and patents. Further, the trademark and trade secret did not imply a significant impact on shareholders' wealth. The IP

announcements of global technology companies generate a positive influence on shareholders' wealth in the short run. Therefore, it can be concluded that the goodwill, patent, and IP announcements positively and significantly impact maximizing the shareholders' wealth. Further, this study determines the dominant technology area of each company during the considered time period with respect to selected intellectual property announcements.

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FACTORS AFFECTING MILLENNIALS' LOYALTY TOWARDS VIRTUAL BANKING: EVIDENCED FROM A STATE UNIVERSITY IN SRI LANKA

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Abstract

The rapid spread of technology has undoubtedly made the Internet the most promising channel for providing banking services. However, despite its potential, several studies have revealed that the internet adoption rate in Sri Lanka remains at an inadequate level. This research study examines the factors influencing millennial loyalty towards virtual banking with reference to a state university in Sri Lanka. The study employed a self-administered questionnaire survey to collect data, with 204 university students participating. The research primarily utilized regression analysis to empirically test the hypotheses. The study revealed that "usability," "perceived risk," "commitment/satisfaction," and "trust" significantly influenced millennials' loyalty towards virtual banking adoption, demonstrating a positive relationship with customer loyalty. However, perceived enjoyment showed no significant relationship. The findings have both short-term and long-term implications, benefiting bank managers, marketing professionals, and technical experts. Thus, as the implications suggest, those stakeholders can think of usability, perceived risk, commitment/satisfaction, and trust as the most powerful considerations that customers expect when using the virtual platform and design the virtual platform by including those features as per customer expectations. Furthermore, the study lays the foundation for future research, especially for technical personnel in banks engaged in developing innovations to meet the expectations of millennial users in virtual platforms.

Keywords: Customer Loyalty, Millennial, Technology Acceptance Model, Virtual Banking.

1. Introduction

1.1. Background of the Study

Technological advancements have significantly reshaped various sectors of the economy, including the retail banking sector. The shift from physical branches to online transactions has transformed the retail banking sector into sales points and personal advisory offices. Self-service technology plays a major role in creating strong interactions between banks and customers. Initially, ATMs and credit cards replaced introductory technological innovations in the banking sector (Galdolage, 2022). However, online and mobile banking have transformed the entire banking system into a digital platform. Mobile banking has made routine banking errands accessible at anytime and anywhere, making customers less cash-dependent and enabling 24-hour banking services. Technological advancements have also reached into other areas, such as magnetic link character recognition codes, electronic clearing service schemes, electronic fund transfer schemes, centralized fund management schemes, RTGS, and computerized settlement of clearing transactions (Fernando & Dinesha, 2019). These advancements have made Sri Lankan bankers more responsive to digital-based apps, software, and other forms of advancement to cater to digitalized customer needs. Banks are selling valuable services to their valuable customers, and retaining a strong, loyal customer base is crucial for success. Virtual banking platforms are key platforms for providing a digitalized banking experience. Customers who intend to use these platforms should have competencies in handling electronic transactions.

The millennial generation, born between 1980 and 2000, is the current generation that has grown up with information technology, internet access, and social media (Accenture, 2015). As a result, virtual banking advancements introduced by banks are quickly adapted and used by them to perform transactions effectively and beneficially. According to Accenture (2015), millennials are not as loyal to their banks as previous generations. As there are numerous banks in the Sri Lankan banking industry, customers can easily switch among banks if they are unsatisfied with the services offered. To retain and create a strong, loyal customer base, banks must consider factors and strategies that can be adapted to become competitive in the banking sector. Currently, almost all banks are trying to adapt virtual banking platforms against traditional banking services. In the post-COVID-19 era, more banks are moving towards virtual banking platforms. The banking industry is facing a critical financial situation, and there is a lack of paper for paper-based transactions. To achieve customer loyalty, banks must be alert to customer expectations and factors affecting customer loyalty towards virtual banking. Further research is needed

to fully understand what drives customer loyalty towards virtual banking adaptation within this generation.

1.2. Problem Statement

This research study conducted a pilot survey among 40 university students using a questionnaire to assess the satisfaction of virtual banking users with their virtual banking platform. The survey included 22 questions, with most respondents selecting 2 and 3 on the Likert scale, validating that the majority of virtual banking users are not satisfied with the service that they receive by using virtual banking platforms. The Cronbach's Alpha values for the variables were above 0.7, indicating the internal consistency of the questionnaire. In this context, the virtual platform can be identified as an indispensable tool in the banking industry in the near future. The millennial generation represents the future important banking customers since they will represent the major income source for banks in the near future. Despite this, they are the people who are highly engaged with advanced technology, and, therefore, who can be most familiar with virtual platforms. Accordingly, it is vital to identify their loyalty level in relation to virtual platforms. Most importantly, it is also essential to identify whether they are actually satisfied with the virtual platform. Thus, the research problem is to identify the factors affecting loyalty among millennial virtual banking customers in Sri Lanka. The study aims to inform banks on the relative importance of these factors and develop further developments in virtual banking platforms. Therefore, the research problem of this study is **"Which factors affect loyalty among millennial virtual banking customers in Sri Lanka?**

1.3. Objectives of the Study

1.3.1. Primary objective

- To examine the factors affecting loyalty among millennial virtual banking customers in Sri Lanka

1.3.2. Secondary Objectives

- To identify the level of influence of 'usability' on millennial customers' loyalty towards adaptation of virtual banking
- To identify the level of influence of 'perceived risk' on millennial customers' loyalty towards adaptation of virtual banking
- To identify the level of influence of 'perceived enjoyment' on millennial customers' loyalty towards adaptation of virtual banking
- To identify the level of influence of 'commitment/satisfaction' on millennial customers' loyalty towards adaptation of virtual banking

- To identify the level of influence of 'trust' on millennial customers' loyalty towards adaptation of virtual banking

1.4. Significance of the Study

Technological advancement is a continuous process, and the Sri Lankan banking industry is adapting to new technologies to stay competitive. This study contributes to understanding factors that create loyalty towards virtual banking and the qualities expected by the millennial generation. It also helps banks identify their influence on loyalty and innovative solutions to gain a competitive advantage. This study serves as a literature review for future research, allowing researchers to sharpen their critical thinking and analytical skills, expand their understanding, and develop existing theories in this field.

1.5. Limitations of the Study

The study has limitations, including a small sample size and an online questionnaire for data collection. Further, the sample is limited to university students in the millennial generation, who are clearly identified as belonging to this group. The study's applicability to the entire population is also limited, as it only focuses on highly-educated millennials, which may hinder generalization to the entire millennial generation in Sri Lanka. Future research opportunities in this area could be created to address these limitations.

2. Literature Review

2.1. Customer Loyalty

The dependent variable of this study is customer loyalty. Customer loyalty has been defined as the unique sort of client attitude towards the association. It is somewhat future forecast about the intention of the client to work with the firm (Zeithaml, Berry, & Parasuraman, 1996).

When it comes to loyalty within the banking sector, numerous studies have been conducted by various researchers, and they have found different aspects of customer loyalty in the banking sector. Bloemer (1998) defines bank loyalty as the purposive (i.e. non-random and evaluating) continuous commitment that customers show towards one bank out of a set of banks that exist over a period of time. Loyalty to a bank can be considered as a continuing process of patronage over time. The degree of loyalty can be caught by tracking customer accounts over defined time periods and being alert to the degree of continuity in patronage (Yi & Jeon, 2003). For the purpose of this research study, customer loyalty refers to the customers having favorable attitudes towards their bank of choice and the services they are providing, which would be reflected within their recommendation of the particular bank. According to a study conducted in

America, Tesfom & Birch (2011) reveal that bank switching barriers are experienced differently across different age groups, where older people experience higher switching barriers than younger people. Thus, as the millennial young generation has more flexibility to switch among banks if they are not satisfied with the service that they receive, inducing them is a must by banks and therefore, Tesfom & Birch (2011) argue that banks need to offer more meaningful incentives to younger customers if they wish to retain them.

2.2. Usability

When considering usability, to understand, determine and explain the underlying factors of computer and information systems acceptance, as well as explain user behavior within the same area, the Technology Acceptance Model (TAM) has been developed by Davis (1986) as provided by Bondeson (2018). The theoretical background was supplemented to the TAM by the theory of reasoned action to explain human behavior, whereas the TAM model was focused on computer usage behavior. When applying this model to the context of virtual banking, several researchers have argued about the relative importance of the two determining variables of perceived usefulness and perceived ease of use, and most of them have argued that perceived usefulness is more important than perceived ease of use. Yousafzai, Foxall, & Pallister (2010) reveal that perceived usefulness is the variable with the biggest impact on acceptance of online banking, where perceived ease of use can have an indirect impact on perceived usefulness. On the contrary, Chau & Ngai (2010) finds that both perceived usefulness and ease of use have the same impact on acceptance when studying young Internet banking consumers (16-29 years). However, Chau & Ngai (2010) also argue that this contrasting relationship could be described by demographical factors, where younger consumers have higher technological acceptance and experience than older generations.

Figure 4: Technology Acceptance Model
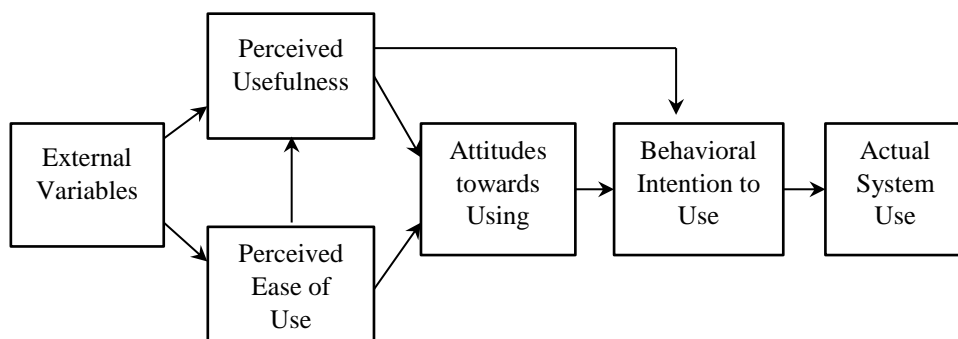
2.3. Perceived Risk

Perceived risk can be identified as a key factor influencing the customers' intention to use technology-based applications. Especially when it comes to virtual banking, Perceived Risk and its different constructs have been found as one of the factors affecting the acceptance and adoption of new technologies. (Martins, et al., 2014; Pikkarainen, et al., 2004; Chen, 2013; Arcand, et al., 2017; Lee, 2009; Wessels & Drennan, 2010)

When it comes to virtual banking, as it is connected with wireless connections and technology-based appliances, the privacy risk is applicable to a huge extent. Lee (2009) states that, in the case of online banking, this risk could occur when, e.g. servers break down, or connectivity is lost, which causes problems in carrying out banking services.

2.4. Perceived Enjoyment

When it comes to technology acceptance by customers, perceived enjoyment acts as another key dimension to create some sort of positive thoughts among customers regarding technology-based platforms. As a hedonic variable, enjoyment refers to the Perceived Enjoyment user experiences while using new technology instead of looking at the gained performance or user-friendliness (Heijden, 2004). Arcand et al. (2017) have found that perceived enjoyment is one of the factors that affect commitment/satisfaction in mobile banking mostly, which is why it is important to consider this factor in the development of mobile banking technologies. Further, Pikkarainen et al. (2004) have included Perceived Enjoyment while studying acceptance of online banking and found that enjoyment has some effect on acceptance of online banking; however, it is not statistically significant.

2.5. Relationship Quality and Its Effect on Loyalty

Being a service industry, it is vital for banks to develop and maintain strong relationships with customers to attract and retain a loyal customer base. Accordingly, Relationship Quality can be conceptualized as the overall assessment of the strength of a relationship (Garbarino & Johnson, 1999; Smith, 1998). When it comes to the dimensions that are coming under the relationship quality, various authors have found various dimensions relating to relationship quality. Accordingly, it was found that the relationship quality consists of three dimensions: commitment, satisfaction and trust. (Wulf, et al., 2001; Palmatier, 2008; Vesel & Zabkar, 2010; Brun, et al., 2014)

2.5.1. Commitment

Moorman et al. (1992) define commitment as an enduring willingness of customers to maintain a valued relationship. Morgan & Hunt (1994) and Eastlick et al. (2006) state that when there is a commitment, the consumer is prepared to invest resources into the relationship and make significant efforts to maintain it.

When we apply the dimension of commitment to the banking context, Bloemer et al. (1998) found that commitment is crucial for the development of true bank loyalty, i.e. loyalty based on absolute commitment.

Vatanasombut et al. (2008) indicate that affective commitment has a strong impact on customer retention in the online banking industry. Therefore, affective commitment was used in this research study.

2.5.2. Satisfaction

According to the research conducted by various researchers, it is considered to be a positive relationship between satisfaction and customer loyalty. A study about satisfaction conducted by Gruen (1995) defines satisfaction as "the extent to which benefits actually received meet or exceed the perceived equitable level of benefits".

However, when we look at this from a banking perspective, Thakur (2014) defines satisfaction as an effective customer condition that results from a global evaluation of all the aspects that create the relationship between the customer and the service provider rather than being a transaction-specific phenomenon.

Further, though commitment and satisfaction are treated as two separate constructs when measured, they have proven to be hard to distinguish for respondents (Wulf et al., 2001; and Arcand et al., 2017). Therefore, in this study, commitment and satisfaction are considered as one variable.

2.5.3. Trust

Trust is obviously a factor that affects toward making positive thoughts among customers. It has been found trust is vital for companies when they are building and maintaining strong relationships with their valuable customers (Geyskens et al., 1996; Rousseau et al., 1998; Singh & Sirdeshmukh, 2000).

When it comes to the banking perspective, Esteric-Plasmeijer & Raaij (2017) and Arcand et al. (2017) found that competence (sometimes referred to as expertise) and integrity appear to be most relevant in the banking sector.

3. Methodology

The current research study adopted the deductive research approach since this research study is a quantitative one and is prone to testing some theories by formulating hypotheses. Since the current research study intends to investigate and explain the underlying factors and their relative importance while answering the research question of "Which factors affect loyalty among millennial virtual banking customers?" this study has adopted a quantitative explanatory research design. Accordingly, in this research study, primary source was mainly used to gather data where a self-administered questionnaire in the form of a Google form was distributed via online platforms like e-mail, WhatsApp, LinkedIn, and Facebook to collect the primary data from respondents and some secondary source also was used which were collected from company websites, annual reports, books, articles and documents as appropriate. The population was considered to be all undergraduates in Sabaragamuwa University, whereas the sample amounted to 250 undergraduates in Sabaragamuwa University out of the entire population selected by using a simple random sampling method. Accordingly, the self-administered questionnaire was distributed among 250 university students, from which only 204 responses were received; therefore, the sample of this study was considered to be 204 university students. For the purpose of analyzing data, regression analysis was carried out to test the hypotheses developed, whereas the reliability test, validity test, normality test, correlation analysis and multiple regression analysis were mainly used as the data analytical tools.

3.1. Conceptual Framework

Figure 2: Conceptual Framework
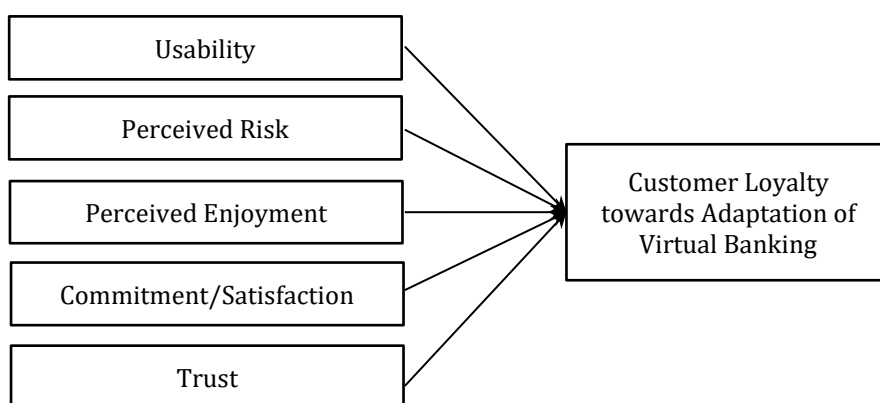
Source: Empirical Sources

3.2. Variables

Usability - Usability can be defined as the degree to which a person believes that using a particular system will lead to enhancing his or her job performance (Davis, 1989).

Perceived Risk - The concept of perceived risk can be seen as a grouping of several risk components, and one of the most common ways to group the concept of perceived risk includes a list of five components, which are financial risk, performance risk, psychological risk, social risk, and physical risk (Jacoby & Kaplan, 1972).

Perceived Enjoyment - Perceived Enjoyment refers to the enjoyment that the user experiences while using new technology instead of looking at the gained performance or user-friendliness (Heijden, 2004).

Commitment/Satisfaction - Commitment is defined as the situation where the consumer is prepared to invest resources into the relationship and make significant efforts to maintain it. An emotional reaction to a consumer experience is referred to as satisfaction (Morgan & Hunt, 1994; Oliver, 1997).

Trust - Trust is defined as the confidence that a consumer has towards a retailer's reliability and integrity (Morgan & Hunt, 1994).

Customer Loyalty - Banking customer loyalty is defined as the purposive decision to commit one bank out of a set of banks over a defined time frame (Bloemer et al., 1998).

3.3. Preparation of Questionnaire

Variable	Questions
Usability	Virtual banking enables me to utilize banking services more quickly
	The effectiveness of my banking activity is enhanced by virtual banking
	Overall, virtual banking is useful for me to utilize banking services
	I find it easy to do what I want using virtual banking
	My interaction with virtual banking is clear and understandable
	Overall, I find virtual banking is easy to use

Perceived Risk	I think that my privacy is protected by using mobile banking
	I trust the technology (the app) the bank is using
	I think that transactions carried out in mobile banking are secure
	Matters of security influence my usage of mobile banking
Perceived Enjoyment	Using mobile banking is fun
	Using mobile banking is pleasant
	Using mobile banking is enjoyable
Commitment/ Satisfaction	I am committed to the relationship with my bank
	I intend to maintain the relationship with my bank
	Doing business with my bank makes me satisfied
	Overall, I am satisfied with my bank
Trust	My bank is trustworthy
	My bank is competent in its field

3.4. Hypotheses Development

Hypotheses were as follows;

H_{1A}: Usability has a significant positive impact on the virtual banking loyalty of millennials in Sri Lanka.

H_{1B}: A sense of low perceived risk has a significant positive impact on the virtual banking loyalty of millennials in Sri Lanka.

H_{1C}: Perceived enjoyment has a significant positive impact on the virtual banking loyalty of millennials in Sri Lanka.

H_{1D}: Commitment/Satisfaction has a significant positive impact on the virtual banking loyalty of millennials in Sri Lanka.

H_{1E}: Trust has a significant positive impact on the virtual banking loyalty of millennials in Sri Lanka.

3.5. Model Specification

The following multiple linear regression model has been developed in order to analyze the relationship between independent variables and dependent variables of the current research study.

When considering independent variables and the dependent variable of this research study, customer loyalty (CL) towards adaptation of virtual banking can be considered as a function of five other explanatory variables, namely, usability (US), perceived risk (PR), perceived enjoyment (PE), commitment /satisfaction (CS) and trust (TR). Therefore, the following model has been developed as the model for the purpose of the current research study.

$$CL = \beta_0 + \beta_1 US + \beta_2 PR + \beta_3 PE + \beta_4 CS + \beta_5 TR + \epsilon \dots\dots\dots\dots\dots\dots (1)$$

4. Data Analysis and Discussion

4.1. Data Analysis

As the first step of data analysis, data were prepared for the analysis by presenting the response rate, missing value analysis, and outlier analysis. Accordingly, the response rate was presented by using a self-administered serial number to identify all respondents. According to the results, both the response rate and the sample's effective response rate were 79.2%. After that, for the purpose of doing missing value analysis, all the responses were checked by using univariate statistics, and there were no missing values that could be found in the data set. As the final part of the preparation of data for the analysis, the data set of the current study was screened to identify outliers by using box-plots. According to the results, seven observations were found to have outliers, and they all were removed from the final data set before going for further analysis.

After preparing data for the analysis, a reliability test was run, and according to the results, Cronbach's Alpha values of all the construct varied from 0.642 to 0.954, which indicates that all the items in the construct are reliable and have significantly contributed to conceptualizing constructs. Further, according to the results of the validity test, all the KMO values of all the variables were greater than 0.5 and also, at the same time, the significant values of all the variables were less than 0.05, which means that the sample of the study is enough in the current study and validate the validity test to proceed with further analysis.

Before going for the regression analysis for hypothesis testing, the data set was tested for multivariate assumptions using linearity, statistical independence, homoscedasticity, normality and multicollinearity. Accordingly, linearity was tested by using a scatterplot for all the variables and according to the results

obtained, all the scatterplots showed a linear relationship among variables by way of the automatic lines drawn in the scatterplot, validating the linear relationship among the variables. Statistical independence was tested by using autocorrelation analysis, and according to the results shown, the Durbin-Watson value of the current study is 2.016, which is in the range ranging from 1.5 to 2.5, validating that there is no statistically significant autocorrelation in the residuals. Homoscedasticity was tested using a scatterplot, and according to the scatter plot obtained, the residual plots in the current study show a random pattern and no curvilinear component, validating the homoscedasticity assumption. Normality was tested by using Skewness and Kurtosis tests where the skewness and kurtosis values of all the independent and dependent variables are within the range of -1 and +1, which provides enough evidence to conclude that the data set for all the independent and dependent variables in the current study are normally distributed. Finally, multicollinearity was tested using tolerance and VIF for each independent variable. Accordingly, the tolerance values for all the independent variables were greater than the 0.1 threshold, and the VIF values of each independent variable are less than 10, which satisfies the precondition, and therefore it can be concluded that the model is free from multicollinearity issues.

Before going for regression analysis, correlation analysis was done using the Pearson correlation test, which showed a positive correlation between independent and dependent variable with a Sig. (2-tailed) value less than 0.05 at a 95% confidence level. The independent variables had a high degree of correlation with customer loyalty towards virtual banking, the dependent variable.

Table 1: Correlation Statistics

		CL	US	PR	PE	TR
US	Pearson Correlation	.795**				
	Sig. (2-tailed)	.000				
PR	Pearson Correlation	.813**	.851**			
	Sig. (2-tailed)	.000	.000			
PE	Pearson Correlation	.675**	.651**	.680**		
	Sig. (2-tailed)	.000	.000	.000		
TR	Pearson Correlation	.738**	.719**	.689**	.674**	
	Sig. (2-tailed)	.000	.000	.000	.000	

CS	Pearson Correlation	.805**	.777**	.756**	.715**	.785**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
**. Correlation is significant at the 0.01 level (2-tailed).							

Source: SPSS Output

Finally, regression analysis was done to test the hypotheses, and the results shown are as follows (Appendix N, O, P);

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.873	0.763	0.756	0.718

Source: SPSS Output

Table 3: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	306.642	5	61.328	118.896	0.000
Residual	95.426	185	0.516		
Total	402.067	190			

Source: SPSS Output

Table 4: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	0.725	0.253		2.863	0.005
US	0.161	0.078	0.155	2.063	0.041
PR	0.363	0.079	0.336	4.601	0.000
PE	0.054	0.065	0.046	0.838	0.403
TR	0.177	0.081	0.134	2.177	0.031
CS	0.415	0.100	0.293	4.161	0.000

Source: SPSS Output

Accordingly, the results of the multiple linear regression indicate usability, perceived risk, trust, and commitment/satisfaction as the best-fitting factors for predicting customer loyalty towards virtual banking. These factors were statistically significant, and the regression equation can be drawn as follows.

$$CL = 0.725 + 0.161\ US + 0.363\ PR + 0.177\ TR + 0.415\ CS + \mathcal{E} \ldots\ldots\ldots(2)$$

Where CL is the Customer Loyalty towards the adaptation of virtual banking, US is the Usability, PR is the low sense of Perceived Risk, TR is the Trust, CS is the Commitment/Satisfaction, and $\mathcal{E}$ is the Error Term.

4.2. Discussion

The main objective of this study was to analyze factors affecting millennial loyalty towards virtual banking evidenced by a state university in Sri Lanka. When analyzing the relationship between usability and customer loyalty towards the adaptation of virtual banking, results showed a significant positive relationship between usability and customer loyalty towards virtual banking adaptation. This finding aligns with previous research showing usability directly impacts loyalty (Thakur, 2014). The study focused on customers who have already adopted virtual banking applications, but findings from Pikkarainen (2004) and Laukkanen (2016) also showed the significance of usability in the acceptance and adaptation of new technology. Overall, usability plays a vital role in both the pre and post-adoption phases of virtual banking.

The regression analysis revealed that perceived risk has the second highest impact on millennial loyalty towards virtual banking adaptation supporting the hypothesis that a low sense of perceived risk has a significant positive relationship with millennials' loyalty towards the adaptation of virtual banking. This finding aligns with previous research by Chen (2013) and Wessels & Drennan (2010), which found high perceived risk negatively impacted customer intention and attitudes towards mobile banking services. The study also supports the idea that perceived risk is a strong predictor of customer loyalty in online banking, making low perceived risk a vital factor in virtual banking adoption.

The study found no significant relationship between perceived enjoyment and customer loyalty towards virtual banking adaptation. This contradicts Bondeson's (2018) and Pikkarainen's (2004) findings, which suggest no significant impact on customer acceptance of online banking services. Therefore, the study concludes that perceived enjoyment does not affect millennial loyalty towards virtual banking adaptation in the post-adoption phase.

Trust showed a significant positive relationship with customer loyalty towards virtual banking adaptation, consistent with several researches showing it as an important antecedent of loyalty (Reichheld & Schefter, 2000; Pavlou, 2003; Van Esteric-Plasmeijer & Van Raaij, 2017). This conclusion suggests that trust is a

crucial factor in determining millennial loyalty in the post-adoption phase of virtual banking adoption.

The study found a significant positive relationship between commitment/satisfaction and millennial loyalty towards virtual banking adaptation. This aligns with previous research by Cater & Zabkar (2009), Oliver (2009), and Bondeson (2018), supporting the positive relationship between commitment/satisfaction and customer loyalty. This conclusion suggests that commitment/satisfaction is a crucial factor in determining millennials' loyalty towards virtual banking adoption in the post-adoption phase.

5. Conclusion

This study examined factors affecting millennial loyalty towards virtual banking at a state university in Sri Lanka. Multiple linear regression was used to identify the relationship between independent factors and the dependent variable. The results showed a positive relationship between usability, perceived risk, commitment/satisfaction, and trust with millennials' loyalty towards virtual banking adaptation. However, perceived enjoyment was statistically insignificant. The lower level of influence on the dependent variable was from usability, while commitment/satisfaction was the most significant factor. Banks should focus on improving commitment/satisfaction in developing virtual banking applications while focusing on other variables, such as usability, perceived risk, and trust, which were also statistically significant.

This research study explores customer loyalty among millennials towards virtual banking adoption, focusing on relationship quality rather than acceptance. It tests variables of commitment/satisfaction and trust, indicating that relationship quality is a good indicator for predicting customer loyalty. The findings provide insights into Sri Lankan banks' needs for developing virtual banking applications, focusing on factors such as commitment/satisfaction and trust. By focusing on these factors, banks can create better applications that meet millennial expectations and improve their overall experience with virtual banking.

6. Future Research

Future research could examine factors affecting millennial loyalty towards virtual banking, considering different age groups and educational levels. The study focused on 14200 undergraduates from a state university in Sri Lanka, but extending to other age groups and educational levels could provide more generalized results. Additionally, future studies could investigate how banks utilize digital services to improve customer relationships, specifically focusing on commitment/satisfaction and trust. This could lead to different results for the banking sector.

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AN EVALUATION OF UNITED STATES' TRADE BALANCE WITH SELECTED TWO COUNTRIES INCLUDING A DEMOGRAPHIC VARIABLE

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Abstract

The purpose of research study is to estimate the determinants of USA's trade balance with Australia and Germany including a demographic variable and testing the relationships in the long run. Engle – Granger test showed a weaker relationship between Australia's import share and GDP ratio. Also, showed a positive long run relationship between net exports (NE) and exchange rate (ER). USA and Australia regression showed that the most important determinant of net export is the GDP ratio, followed by the price deflator ratio, money supply ratio, lending rate ratio and the real exchange rate, which explains 89.7% of the variation in net exports. USA and Germany regression showed that the most important determinant of net export is the real exchange rate, followed by GDP ratio and youth dependency ratio which explains 76.9% of the variation in net exports. We run F – Test, that net exports depend on rising and falling exchange rate regimes for both pairs. Results based on the error correction model (ECM) suggests that there exists a positive long-run relationship between expected exchange rate (ER) and USA's net export (NE) at 5% level of significance, for both pair of countries.

Keywords: Demographic, Determinant, Trade balance.

1. Introduction

This study looks into the determinants of the United States of America's trade balance with Australia and Germany. Shedding some light on the determinants and the level of influence they have on the USA's trade balance is essential as it helps these countries develop a better relationship in terms of their international trade and financial affairs. Accordingly, the economic effects of the USA's trade deficit have been a topic of long-standing congressional interest of the USA and the rest of the world because the USA's economic policies have an impact on all other countries to the extent of small or big.

Understanding the determinants and their level of influence on the US trade balance is essential, as it helps policymakers develop better relationships in terms of international trade and financial affairs. This study examines the determinants of the United States' trade balance with Australia and Germany.

Over a certain time, the monetary value of a nation's exports minus imports is called the trade balance. If a nation's export value is greater than its import value, it is called a trade surplus, positive, or favourable balance. Conversely, if a nation's import value is greater than its export value, it is called a trade deficit, negative, or unfavorable balance. Political and economic factors, such as gross domestic product rate, nominal exchange rate, money supply, lending rate, real exchange rate, price deflator ratio, and youth dependency ratio, affect the growth of international trade (Factors Influencing International Trade, 2021).

The United States of America gains in many ways from its trade relationship with Australia, such as by expanding the production of its powerful competitive industries and products and shifting production to attractive areas. Australia's economy helps to increase the productivity of the average United States employee, and the income that the US earns from its ability to serve a well-developed global market encourages investment in Australia's expanding export sectors. This expansion of scale helps to reduce the mean of production costs, which in turn helps to boost the US economic growth rate.

The United States and Australia are highly developed mixed economies. They have benefited from a long period of cooperation between their governments and people. The relationship between the two countries is dynamic, not static. The United States is the world's leading global trader and owns the largest national economy. The trade balance of Australia with the USA in 2019 was $8.0 billion in favour of Australia.

Germany has run a trade surplus due to stronger exports of vehicles and other machinery since 1952. In 2019, Germany's trade surplus amounted to 209.21 billion U.S. dollars, making it the world's largest exporter after China and the United States. In that same year, the United States exported 96.7 billion U.S.

dollars' worth of goods and services to Germany and imported 162.9 billion U.S. dollars' worth of goods and services from Germany, according to the U.S. Department of State.

1.1. Research Problem and Justification

The research problem of the study was "What key factors affect the evaluation of the United States trade balance with Australia and Germany, including a demographic variable?

1.2. Research Objectives

As our objective was,

- To determine these factors that influence the trade balance between the USA /Australia and the USA /Germany.
- To analyze the symmetry of the effects of rising and falling US dollar rates with respect to the Australian dollar and Euro.
- To test the long and the short-run relationships among Australia's/Germany's import and Australia's /Germany's export shares.
- To analyze the long and short-run relationship between the exchange rate and the country's trade balance.

2. Literature Review

Kumar (2020) studied the results of India's trading on the growing economy of neighboring countries Sri Lanka, Bhutan, Bangladesh, and Nepal. The negative effects of imports and positive effects of exports were found in a pair of countries. This research study focuses on the importance of exports and positive economic performance.

Yugang He (2017) studied the trade balance between China and USA based on cointegration analysis. A cointegration test was used for the analysis. The outputs show that the number of exports, the nominal exchange rate and the USA's disposable income have a positive effect on the trade balance. Similarly, China's disposable income and imports have a negative effect on that. To maintain a better trade balance, China's government should open more domestic markets to the world.

Atif Ali Jaffri et al. (2016) studied the impact of demographic changes on inflation in Pakistan. The Autoregressive Distributed Lag (ARDL) model was used for this analysis. Population growth, middle age working population proportion, consumer price index, inflation, real GDP, and changes in terms of trade and money supply growth were used in this study. Results concluded that the population growth positively impacts inflation, and the middle-aged working population portion negatively impacts inflation. Also, negative

coefficients of the Error correction model (ECM) show a long run relationship analysis exists between variables.

Arize (2017) studied the USA's trade balance and real effective exchange rate relation. ARDL method was used for this analysis. This study investigated not only the long run relationship but also the short run dynamics between the USA's trade balance and the given real effective exchange rate.

3. Methodology

Our interest is in learning about the United States' trade balance with selected two countries, especially Australia and Germany, including a demographic variable. The researchers intend to estimate the factors affecting the United States' trade balance with two selected countries, Australia and Germany, and the long run relationship between the selected variables.

Further, non-stationary variables should not be used in regression models to avoid the problem of spurious regression. However, there is an exception to this rule. (Hill, Griffiths, and Lim, n.d.). fY_t and X_t are non-stationary I (1) variables, then we expect their difference, or any linear combination of them, sh as $e_t = Y_t - \beta_1 - \beta_2 X_t$ to be I (1) as well. Also, Y_t and X_t are said to be cointegrated. Cointegration implies that Y_t and X_t has similar stochastic trends. (Hill, Griffiths, and Lim, n.d.).

Further, all the variables are in first order, and I (1) mean nonstationary. The cointegration for all the non-stationary variables were tested and fitted the multiple linear regression model. Here the results are super consistent, but only a few variable results are included under the empirical analysis. When nonstationary variables are used in regression analysis, such regression is said to be spurious if the variables are not co-integrated. Then, it will be a false consistency.

Augmented Dickey–Fuller test (ADF) and Phillips – Perron tests (PP) were used to investigate especially the stationarity of the regression study variables. In all the cases, the result provided by Phillips – Perron (PP) tests is consistent compared to Augmented Dickey – Fuller (ADF) tests. All the variables are I (1), which means they are non-stationary. Since the variables are non-stationary, the cointegration test is run to identify the relationship. Also, cointegration tests showed the relationship between variables, then ran the multiple linear regression model to identify the determinants of the USA's trade balance. These results are called super consistent.

Cointegration methods are used to observe the short and the long run relationship between the United States trade balance with the selected two countries. Engle and Granger suggested the simple ordinary level least squares

(OLS) based estimation procedure and maximum likelihood methods advocated by Johansen have been used. Johansen's method integrates both the long and short run dynamic. The number of cointegrating vectors can be determined by Johansen's method. A cointegrating relationship amongst the I (1) series exists if the residual series is stationary.

The multiple linear models were used to determine the factors affecting the United States' trade balance compared to Australia and Germany. The following variables are used in the multiple linear regression model: GDP per capita (GR) ratio, nominal exchange rate (ER) ratio, youth dependency (DE) ratio, money supply (MR) ratio, lending rate (LR) ratio, real exchange rate (RER) ratio, and GDP price deflator (PR) ratio.

Error correction method (ECM) is applied to analyze multivariate time series data that is not stationary, but cointegration occurs between the variables used in the model. This method will also be used to see how much influence the independent variable has on the dependent variable in the long run. Error correction model allows for the existence of an underlying or fundamental link between variables (the long run relationship) as well as for short run adjustments.

4. Results and Discussion

4.1. Descriptive Statistics

Table 1: Summary Statistics on Variables for the Pair of USA and Australia.

Variables	Mean	S. D	C. V (%)
Per person real GDP Ratio (GR)	1.031172	0.291868	11.25
Nominal Exchange rate (ER)	1.324304	0.231657	17.49
Real Exchange rate (RER)	0.787184	0.144815	18.40
GDP Price Deflator ratio (PR)	1.324304	0.231657	17.49
Money Supply ratio (MR)	13.14542	7.180663	34.62
Lending rate ratio (LR)	0.813294	0.290770	25.75
USA net exports to Australia (NE)	10.51929	1.950362	18.54
Export share of Australia (ES)	0.567918	0.066483	11.71
Import share of Australia (IS)	0.666237	0.099671	14.96
Youth Dependency (DE)	1.004260	0.066118	6.58

Source: Output of Data Analysis

The Coefficient of variation (CV) selected values describe the real considerable volatility level of the regression variables considered in percentages. For the USA and Australia pair, the very low-level relevant variability of 6.58% is also depicted by the youth dependency ratio and determinants followed by the GDP ratio and export share of Australia. For the the USA and Germany pair, the low-level relevant variability of 5.28% is also depicted by the youth dependency ratio and determinants followed by the GDP price deflator ratio.

Table 2: Summary Statistics on Variables for the Pair of USA and Germany.

Variables	Mean	S. D	C. V (%)
Per person real GDP Ratio (GR)	1.261190	0.226050	17.92
Nominal Exchange rate (ER)	1.075316	0.145844	13.56
Real Exchange rate (RER)	0.875694	0.150930	17.24
GDP Price Deflator ratio (PR)	0.909772	0.073267	8.05
Money Supply ratio (MR)	5321561	2777186.	52.18
Lending rate ratio (LR)	0.033124	0.067426	203.56
USA net exports to Germany (NE)	1.463750	0.217931	14.89
Export share of Germany (ES)	0.322457	0.116404	36.10
Import share of Germany (IS)	0.299626	0.082823	27.64
Youth Dependency (DE)	1.407715	0.074334	5.28

S. D = Standard deviation
C. V = Coefficient of variation = (S. D / Mean) * 100
Source: Output of Data Analysis

4.2. Cointegration Test

Table 3: Engle – Granger Cointegration test for Australia's ES/IS shares and GR.

Cointegration Vector	ADF Test	MacKinnon values at		Critical	Cointegrated at		
		1%	5%	10%	1%	5%	10%
. No trend							
GR, ES	-3.5461	-4.65	-3.93	-2.59	NO	NO	YES
ES, GR	-3.8271	-4.65	-3.93	-2.59	NO	NO	YES
GR, IS	-0.6454	-4.65	-3.93	-2.59	NO	NO	NO
IS, GR	-2.4311	-4.65	-3.93	-2.59	NO	NO	NO
. With Trend							
GR, ES, T	-3.5947	-5.11	-4.42	-3.18	NO	NO	YES

Cointegration Vector	ADF Test	MacKinnon	values at		Critical	Cointegrated at		
ES, GR, T	-3.7905	-5.11	-4.42	-3.18		NO	NO	YES
GR, IS, T	-4.7866	-5.11	-4.42	-3.18		NO	YES	YES
IS, GR, T	-3.6238	-5.11	-4.42	-3.18		NO	NO	YES

Source: Output of Data Analysis

It's shown in Table 3 that when the trend term is removed/excluded in the model, there isn't any strong cointegration. However, when the trend is included, there is a cointegration analysis between Australia's import value of the share (IS) and the output growth (GR), and Australia's export value of the share (ES) and the output growth (GR) at 10% level of significance.

Table 4: Engle – Granger Cointegration test for ER and Trade Balance (NE).

Cointegration Vector	ADF Test	MacKinnon values at		Critical	Cointegrated at		
		1%	5%	10%	1%	5%	10%
. No trend							
LNNE, LNER	-0.9854	-4.65	-3.93	-2.59	NO	NO	NO
LNER, LNNE	-2.9944	-4.65	-3.93	-2.59	NO	YES	YES
NE, ER	-0.8433	-4.65	-3.93	-2.59	NO	NO	NO
ER, NE	-3.2117	-4.65	-3.93	-2.59	NO	YES	YES
. With Trend							
LNNE, LNER, T	-3.5794	-5.11	-4.42	-3.18	NO	NO	YES
LNER, LNNE, T	-2.9264	-5.11	-4.42	-3.18	NO	NO	NO
NE, ER, T	-3.2923	-5.11	-4.42	-3.18	NO	NO	YES
ER, NE, T	-3.0751	-5.11	-4.42	-3.18	NO	NO	NO

Correlation relationship between nominal exchange rate (LNER) (US/AUS) and USA's trade balance (NE) with ADF test statistic and MacKinnon critical values. When the trend is excluded, there is a correlation between the nominal exchange rate (LNER)/real exchange rate (LNRER) and the USA's net export (LNNE) at a 10% significance level.

Source: Output of Data Analysis

Table 5: Engle – Granger Cointegration Test for Germany's ES/IS Shares and Output Growth (GR).

Cointegration Vector	ADF Test	MacKinnon values at		Critical	Cointegrated at		
		1%	5%	10%	1%	5%	10%
1. No trend							
GR, ES	-2.3470	-4.65	-3.93	-2.59	NO	NO	NO
ES, GR	-0.5437	-4.65	-3.93	-2.59	NO	NO	NO
GR, IS	-2.2258	-4.65	-3.93	-2.59	NO	NO	NO
IS, GR	-0.3108	-4.65	-3.93	-2.59	NO	NO	NO
2. With Trend							
GR, ES, T	-2.2959	-5.11	-4.42	-3.18	NO	NO	NO
ES, GR, T	-1.9983	-5.11	-4.42	-3.18	NO	NO	NO
GR, IS, T	-2.2037	-5.11	-4.42	-3.18	NO	NO	NO
IS, GR, T	-2.5235	-5.11	-4.42	-3.18	NO	NO	NO

Correlation relationship between Germany's import/export share (IS/ ES) and output growth (GR) with ADF test statistic and MacKinnon critical values. There is no strong correlation between Germany's import/export share (IS/ ES) and output growth (GR) when the trend is excluded and included.
Source: Output of Data Analysis.

Table 6: Engle–Granger Cointegration test for Germany's ER and Trade Balance (NE)

Cointegration Vector	ADF Test	MacKinnon values at		Critical	Cointegrated at		
		1%	5%	10%	1%	5%	10%
1.No trend							
LNNE, LNER	-2.8454	-4.65	-3.93	-2.59	NO	NO	YES
LNER, LNNE	-4.2250	-4.65	-3.93	-2.59	NO	YES	YES
NE, ER	-2.5103	-4.65	-3.93	-2.59	NO	NO	NO
ER, NE	-4.6529	-4.65	-3.93	-2.59	YES	YES	YES
2.With Trend							
LNNE, LNER, T	-3.1082	-5.11	-4.42	-3.18	NO	NO	NO
LNER, LNNE, T	-4.1617	-5.11	-4.42	-3.18	NO	YES	YES
NE, ER, T	-3.8924	-5.11	-4.42	-3.18	NO	NO	YES
ER, NE, T	-4.5821	-5.11	-4.42	-3.18	NO	YES	YES

Correlation relationships between nominal exchange rate (LNER) (US/ EURO) and USA's trade balance (NE) with ADF test statistic and MacKinnon critical values. When the trend is excluded, there is a correlation analysis between the nominal exchange rate (LNER), the real exchange rate (LNRER) and the USA's net export (LNNE) at a 10% significance level.
Source: Output of Data Analysis

4.3. Multiple Linear Regression

$$lnNE = f\ (lnGR, lnER, lnMR, lnLR, lnDE, \varepsilon_t)\ \text{----------------------- (1)}$$

The negative nominal exchange rate (ER) sign suggests that when other external factors are equal, the nominal exchange rate (ER) ratio rises by 1%, explaining that the US dollar rate weakens against the Australian dollar. As ER rises by 1%, the net exports (NE) ratio falls by 0.46% because even though the USA's exports increase, imports also increase by a bigger value than the exports, leading to a decline in net exports (NE).

$$lnNE = f\ (lnGR, lnRER, lnPR, lnMR, lnLR, lnDE, \varepsilon_t)\ \text{-------------- (2)}$$

Nominal exchange rate substitution is done to find out if the inflation differential or price deflator between two countries significantly explains the trade flow and if the real value of the exchange rate significantly explains trade flows, given that the value of the nominal exchange rate was floating during the selected survey period. The floating nominal rate makes the nation's monetary policy control inflation rather than serve the exchange rate.

This strong significance of the price deflator ratio implies that the researchers and the policymakers are interested in the USA's and Australia's trade issues together with other macroeconomic fundamentals to include the nation's trade balance among other countries throughout the time. Since Australia and the USA are known as low inflation countries, these dominance level of relative price index effects with the exchange rate considered is consistent over time. 1% rise in the price deflator ratio in a 0.91% fall in the United States of America's net exports to Australia. The price deflator ratio and real exchange rate were significant since the USA/Australia rate was a floating exchange rate.

As a result of the model (2) shown in Table 8, a 1% rise in the GDP ratio results in a 0.72% fall in the United States of America's net export to Australia. The USA's imports increased more relative to exports, the reducing the trade gap. Hence, a negative value of the GDP ratio (GR) seems reasonable. While other factors are equal, the negative sign of the money supply ratio (MR) shows that M_2 in the followed USA relative to Australia rises by 1% outputs in a 0.21% reduction in the USA's net export. Even though there is a rise in the USA's exports, the increase in the USA's imports exceeds the rise in the USA's exports.

This positive value lending rate ratio (LR) shows that the USA in relative to Australia, falls by 1%, outputs as a 0.13% reduction of America's net exports, because the USA's imports rise by a bigger amount than the USA's exports rise. These estimated trade patterns characterize the trade balance between the USA and Australia until this balanced trade is achieved.

$$lnNE = f\ (lnGR, lnRER, lnMR, lnLR, lnDE, \varepsilon_t)\ \text{----------------------} (3)$$

The researchers present Model (3) to explore the significance level of the real value exchange rate if the price deflator ratio is excluded. The variable GDP ratio (LNGR) is significant at the 5% level. The real value of the exchange rate is insignificant, and the significance level of other regressors is also reduced sufficiently. The adjusted coefficient of determination reduces from 0.897 to 0.871.

$$lnNE = f\ (lnGR, lnRER, lnPR, lnMR, lnLR(-1), lnDE, \varepsilon_t)\ \text{----------} (4)$$

The researchers present the result of the model (4): lending rate ratio exhibited more importance than the other variables. The lending rate ratio describes the interest rates in net exports determination. These lending rate ratios are important factors of relative level growth potential between these two countries monetary tensions may not be fully captured to influence trade flows.

$$lnNE = f\ (lnGR, lnER, lnMR, lnLR, lnDE, \varepsilon_t)\ \text{----------------------} (5)$$

The negative youth dependency ratio (LNDE) sign suggests that when other external factors are equal, youth dependency increases by 1%, which explains that the USA's net exports weakened against the youth dependency ratio. GDP per capita (LNGR) and youth dependency (LNDE) have a negative relationship. Youth dependency is likely to reduce economic growth. As the youth dependency ratio (LNDE) rises by 1%, the USA's net export falls by 1.37% because higher youth dependency is referred to as higher investment, which is necessary to be made in childcare and schooling for higher improvements.

$$lnNE = f\ (lnGR, lnRER, lnPR, lnMR, lnLR, lnDE, \varepsilon_t)\ \text{--------------} (6)$$

When other external factors are equal, a real exchange rate (RER) increases by 1%, which explains that the USA's US dollar weakens relative to the German Euro. As RER rises by 1%, net export falls by 1.12%. Imports increase by a larger amount. As shown in Table 7. A 1% rise in GDP ratio output shows a 0.62% fall in the USA's net value export to Germany, USA's; USA's imports increase more than exports, reducing the trade gap. Hence, a negative GDP ratio (GR) seems reasonable.

4.4. F-Tests

These F–tests were used to test the significant and asymmetric parameter shifts in the given model with dummy and model with dummy interactions for the pair of USA and Australia vs USA and Germany because of the rising and falling the value of the exchange rate. That implies net export responds to falling and rising exchange rate regimes symmetrically.

4.5. Error Correction Model

Error correction model (ECM) is a part of Engle and Granger's two step procedure, short-run value and long run value adjustments. If all these variables are I (1) and the error, is I (0), it means cointegration or a long run relationship exists. The negative and significant sign of the error correction coefficient suggest the presence of a long run relationship. The Error correction statistical model (ECM) is run for both pairs, USA/ Australia and USA/Germany.

5. Conclusion

For the pair of USA and Australia, Eagle and Granger tests shows that Australia's import share (IS) and the output growth (GR) are cointegrated at a 10% significance level when the trend is included/excluded. When the trend is included, there is a cointegration between the nominal exchange rate (LNER)/ real exchange rate (LNRER) and the USA's trade balance (LNNE) at 10% significance level.

Regression based on Model (1), Gross domestic product (LNGR), money supply (LNMR), nominal rate (LNER), and lending rate (LNLR) are taken as ratios in descending order explain 88.9% of observed variation, and Model (2), GDP (LNGR), money supply ratio (LNMR), price deflator ratio (LNPR), real exchange rate (LNRER) and lending ratio (LNLR) in descending order explain 89.7% of the level of variations in the United States net value exports with Australia.

F test suggests that for both intercept and slope change, net exports respond to both regimes in a symmetric manner. There is no significant difference between the effects of falling and rising exchange rate regimes at a 10% significant level.

For the pair of USA and Australia, the error correction model shows the long run effect of exchange rate changes shown on the level of USA's net value exports (NE) is positive, USA dollar weakens relative to Australia, implying that the exchange rate (ER) expected to rise than expected net exports (NE) rises. The short run dynamics depict a positive relationship between USA's net value export (NE) and the exchange rate (ER).

Linear regression of USA and Germany obtained based on Model (5) given that GDP ratio (LNGR), money supply ratio (LNMR), nominal rate ratio (LNER),

lending rate ratio (LNLR), and youth dependency ratio (LNDE) explain 44.64% of the observed variation, which model is not significant at 5% level. Model (6) shows that the real exchange rate ratio, GDP ratio and youth dependency ratio explain 76.88% of the observed variation; the model is significant at a 5% level. The real exchange ratio, GDP ratio and youth dependency ratio have a negative relationship with net export.

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EFFECT OF ECONOMIC DEVELOPMENT ON ENVIRONMENTAL POLLUTION: A COMPARATIVE ANALYSIS BETWEEN DEVELOPED AND DEVELOPING COUNTRIES

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Abstract

Environmental pollution is a critical factor worldwide due to the enhanced frequency and severity of natural disasters and catastrophes, and it crucially affects the survival of the universe. Hence, the study focused on the impact of economic growth on environmental pollution. This research study comparatively analyzes the impact of economic growth on environmental pollution in developed and developing countries and it investigates the impact of economic growth and environmental pollution. The study incorporated a data series over the period of 1980-2022 of 50 countries. The panel data regression analysis employed in this study to analyze the impact of economic growth on the environmental pollution which are proxied using the Gross Domestic Product Growth rate and the Carbon Emissions (CO2) metric tons per capita with the control variable incorporated the energy consumption. In addition, the researchers assessed the Environmental Kuznets Curve (EKC) theory in the study to provide an in-depth understanding of the study field. Further, the study revealed a significant positive impact of economic growth on environmental pollution in the developing countries. The study supports the validity of the EKC theory in explaining the relationship between economic growth and environmental degradation. Hence, establishing environmentally friendly economic policies and practices are highly appreciated to lower environmental pollution and to shrink the adverse effects of economic growth on environmental pollution in the developing countries. These research findings highlight the importance of sustainable practices, environmental regulations, and collaborative efforts to mitigate the negative impacts of economic development on the environment. This study serves as a foundation for future research in this critical area to have a sustainable environment in the future while having a coherence between the lower emission rates and the higher economic growth rates.

Keywords: Carbon Emission; economic growth; environmental pollution; environmental Kuznets curve; gross domestic product growth.

1. Introduction

Economic development has been the primary force behind the rapid growth of societies around the world. On the other hand, striking a balance between economic development and the conservation of the natural environment is a significant challenge. The complex relationship between economic development and environmental pollution has become a subject of growing attention in terms of sustainable development (SDGs) and the well-being of future generations. This thesis aims to explore the impact of economic development on environmental pollution. By examining the interplay between these two critical areas, we can gain a deeper understanding of the complex consequences that arise from the pursuit of economic growth.

Environmental pollution refers to the presence or introduction of harmful substances into the environment that causes adverse effects on the natural world and the health of living organisms, including humans. Pollution can come from various sources and can occur in different forms(Ukaogo et al., 2020). Increased environmental protection risk from economic actions and activities undertaken for economic development has become a global problem. Economic development and environmental protection are one of the major challenges facing humanity today(Shoaib et al., 2020). Economic development can have both positive and negative effects on environmental pollution. The relationship between economic development and environmental pollution is complex and can vary depending on various factors, such as the stage of development, technological advancements, government policies, and societal awareness(Chen et al., 2021). Economic development often involves industrialization, which can lead to increased pollution. Industries release pollutants into the air, water, and soil through their production processes. Factories that burn fossil fuels for energy pose risks to human health and ecosystems by releasing greenhouse gases and other pollutants that contribute to climate change and air pollution(Zhao et al., 2018).

As economies grow, there is usually an increase in industrial production, consumption, and overall economic activity. This growth often leads to higher carbon emissions. Industries that rely on fossil fuels such as coal, oil, and natural gas emit carbon dioxide (CO_2) and other greenhouse gases (GHG) during energy generation and production processes. Increased economic activity, particularly in sectors such as manufacturing, transportation, and construction, can increase energy demand and carbon emissions. Energy consumption is a major driver of carbon emissions. Most of the global energy production is still heavily dependent on fossil fuels. When fossil fuels are burned for electricity generation, heating, transportation, and other purposes, they release CO_2 into the atmosphere. High levels of energy consumption, in particular, directly

contribute to increased carbon emissions (Osobajo et al., 2020).

Developed countries generally have high levels of energy consumption due to their advanced industrial sectors, transportation systems, and high living standards. Developing countries are experiencing rapid economic growth and industrialization, resulting in increased energy consumption. Developed countries have historically contributed significantly to global carbon emissions due to their long-term industrialization and economic growth. However, many developed countries have attempted to reduce carbon emissions through clean technologies, energy efficiency measures, and policy interventions. Developing countries are becoming major contributors to global carbon emissions as their economies expand. In the pursuit of economic development, energy consumption from fossil fuel sources often increases, leading to higher carbon emissions. However, developing countries are increasingly recognizing the importance of sustainable development and are taking steps to reduce emissions and switch to cleaner energy sources. Both developed and developing countries contribute to global carbon emissions, and their energy consumption, economic development, and policy responses differ. Developed countries often have lower carbon emissions per unit of economic output due to cleaner technologies and policies, while developing countries produce more carbon emissions with faster economic growth (Chen et al., 2021).

Promoting sustainable economic growth worldwide requires a comprehensive strategy and international cooperation that includes measures to reduce emissions and adapt to the impacts of climate change. Finding the strategy should also include research and development (R&D).

1.1. Problem Statement

This research aims to study and compare how economic growth affects environmental pollution in developed and developing countries. Economic development often involves industrialization, which can lead to increased pollution. One of the main ways economic growths affects pollution is through energy consumption. Energy consumption is a significant driver of carbon emissions. The factories that burn fossil fuels for energy release greenhouse gases and other pollutants that contribute to climate change and air pollution. This impact on human health and ecosystems has become a global problem today(Shoaib et al., 2020).

Energy consumption is everywhere in the world in both developed and developing countries. The extent and nature of this impact may vary depending on their technology, government policies, and industrialization readiness. Understanding the impact of economic growth on environmental pollution is

critical for policymakers, researchers, and stakeholders to develop effective strategies and policies for sustainable development.

Therefore, it is necessary to do this study to know how economic growth affects environmental pollution in developed and developing countries.

1.2. Research Questions

    I.   Does economic development in developed and developing countries affect their environmental pollution?
   II.   How do economic development and energy consumption affect CO2 emissions in developed countries?
 III.   How do economic development and energy consumption affect CO2 emissions in developing countries?
 IV.   What are the strategies to reduce the impact of economic development on pollution in developed and developing countries?
  V.   How do policies and strategies to reduce pollution in developed countries affect financial costs?

1.3. Objectives of the Study

Specific objectives:

- To identify the impact of energy consumption and economic development on CO2 emissions in selected developed and developing countries.
- To compare how the behavior of economic growth in developed and developing countries affects environmental pollution.
- To provide strategies to reduce CO2 emissions by reducing energy consumption in developed and developing countries based on empirical findings of the study.

General Objectives:

- To understand how the consequences of economic growth affect environmental pollution in developed and developing countries.
- To provide recommendations for governments, businesses, and other stakeholders to reduce the negative impact of pollution from excessive energy use on economic growth.
- To evaluate the effectiveness of existing policies, laws, and regulations to reduce environmental pollution and promote sustainable

development.

- To explore the role of international cooperation in addressing the economic consequences of environmental pollution in developed and developing countries.
- To identify research and knowledge gaps on the relationship between economic growth and environmental pollution and prioritize areas for future research.

1.4. Significance of the Study

- Research helps increase our understanding of the complex relationships between economic growth and environmental pollution.
- Research helps identify specific areas where economic growth has the most significant impact on pollution, such as particular industries or regions with high energy consumption.
- Research can provide important information that can be used to inform policy decisions aimed at reducing pollution and promoting sustainable development.
- Studying the impact of economic growth on pollution in developed and developing countries can promote international collaboration in research and share best practices among countries.
- Overall, research on the impact of economic growth on pollution can provide valuable insights that can be used to promote sustainable development, improve public health, and enhance economic growth.

1.5. Limitation of the Study

- Data on pollution and economic growth can be difficult to obtain. Especially in developing countries where data collection and reporting systems are underdeveloped.
- The relationship between corruption and economic growth is complex and can be influenced by a wide range of factors such as economic policies, demographics, and culture, making it difficult to isolate the effects of corruption.
- The effects of economic development on environmental pollution can be long-term and not immediately visible, making it difficult to study and understand.
- World Bank (WB) data cannot be guaranteed to be 100 percent accurate. Because the data is completely based on econometric modules, tools, outputs, and software packages, there is a possibility of technical errors.
- Measuring the development level of countries is a complex task that involves considering various indicators. Classification as developed or

developing countries is not static and may change over time as countries progress and develop.

- When selecting developed and developing countries, HDI rankings are not an absolute measure of development and do not capture all aspects of well-being or sustainability. They provide a general assessment of a country's development but may not reflect specific nuances or challenges within each country

2. Literature Review

2.1. Theoretical Review

2.1.1. Environmental Kuznets Curve (EKC)

The Environmental Kuznets Curve (EKC) is an economic theory that proposes a specific relationship between environmental degradation and economic development. It assumes an inverted U-shaped curve representing the relationship between per capita income or economic growth and various environmental indicators.

EKC theory suggests that environmental degradation worsens when countries experience industrialization and urbanization in the early stages of economic development. This initial phase is characterized by increasing levels of pollution, deforestation, and resource depletion as economic activity intensifies. As income increases, the demand for goods and services increases, leading to increased production and consumption, often at the expense of the environment.

Figure 1: Environmental Kuznets Curve
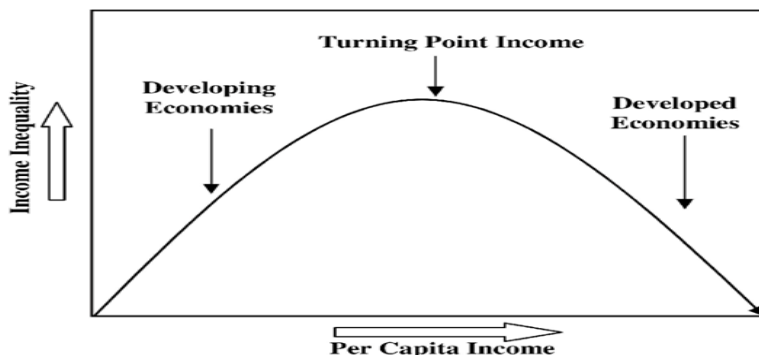
However, as countries reach a certain income threshold or level of economic development, EKC theory suggests that environmental degradation begins to decrease. Beyond this turning point, further economic growth goes hand in hand with an improvement in environmental quality. Factors such as increased awareness, technological advances, policy interventions, and a shift in consumption patterns to cleaner and more sustainable practices can lead to a reduction in environmental degradation.

EKC theory has been applied to various environmental indicators, including air and water pollution, deforestation, loss of biodiversity, and carbon emissions. Researchers have examined empirical data from various countries to examine the existence and shape of EKC. However, findings are mixed, indicating that the relationship between economic growth and environmental degradation is complex and context dependent. Overall, EKC theory provides a framework for understanding the relationship between economic growth and environmental degradation (Kong & Khan, 2019).

2.2. Empirical Review

Empirical findings show that energy consumption has a positive relationship with carbon emissions (Zhu et al., 2016). Further empirical findings show that there is a positive relationship between per capita energy consumption and per capita GDP in Central Asia, which indicates that economic growth in the region is highly dependent on energy consumption. However, per capita CO2 emissions have a negative impact on per capita GDP, researchers say. Additionally, they state that there is a negative relationship between per capita GDP and per capita energy consumption (NGUYEN, 2019). Environmental regulation and concentration of high energy-consuming industries show positive effects on environmental pollution, with long-term effects outweighing short-term effects (Wang & Zhou, 2021).

The empirical findings indicate the existence of an inverted U-shaped relationship between carbon dioxide emissions and GDP per capita (Kais & Sami, 2016). A study revealed a reciprocal causal relationship between economic growth and energy consumption, indicating that they influence each other. Additionally, a unidirectional causal relationship was observed between energy consumption to CO2 emissions and suggesting that energy consumption contributes to the generation of CO2 emissions (Wang et al., 2016). Empirical findings from another study demonstrated a substantial positive relationship between energy consumption and economic growth, both of which were found to have a significant impact on CO2 emissions (Osobajo et al., 2020).

Research suggests that adopting policies aimed at enhancing energy efficiency

and mitigating air pollution is crucial for fostering sustainable economic development (Nathaniel & Khan, 2020). These studies highlight the detrimental effects of air pollution on economic development, albeit with variations in the magnitude of impact depending on the level of economic development and the specific type of pollution being considered(Ali & Puppim De Oliveira, 2018).

3. Research Methodology
3.1. Conceptual Framework

The overall idea of the variables used for this study has been shown through the conceptual framework. According to the research topic, how economic development effect environmental pollution will be analyzed here. Accordingly, economic development used as independent variables and carbon emissions as dependent variables. And There is a control variable call energy consumption.

The main objective of this research is to analyze the relationship between these variables and their influence on each other. Accordingly, it has been mapped and shown how the variables of the study come together to reach those conclusions.

Figure 2 Conceptual framework author constructed.
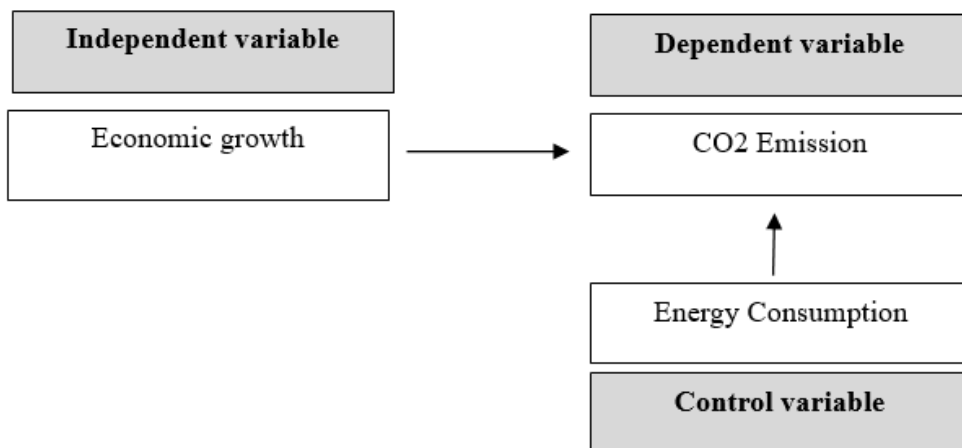
3.2. Conceptualization and the Variables of the Study

Table 1 Measurement indicators of variables

Variables	Measurement indicators
Energy Consumption (ECN)	Fossil fuel energy consumption (% of total)
Economic Growth (GDP)	GDP growth (annual %)
Carbon Emission (CO2)	CO2 emissions (metric tons per capita)

Source: EViews output

3.3. Research Hypotheses

H1: There is a significant impact of energy consumption on the CO2 emissions in developed countries.

H2: There is a significant impact of energy consumption on the CO2 emissions in developing countries.

H3: There is a significant impact of economic growth on the CO2 emissions in developed countries.

H4: There is a significant impact of economic growth on the CO2 emissions in developing countries.

3.4. Research Design
3.4.1. Purpose of the Study

The research questions of the study focus on understanding the impact of economic development on environmental pollution in both developed and developing countries, as well as the strategies to reduce this impact. The objectives of the study include identifying the impact of energy consumption and economic development on CO2 emissions, comparing the behavior of economic growth in developed and developing countries, providing strategies to reduce CO2 emissions based on empirical findings, and evaluating existing policies and

regulations to promote sustainable development.

3.4.2. **Sources of Data**

The data source on which this research is based is the World Development Indicators (WDI). The World Bank compiles and publishes a wide range of development indicators and data through its World Development Indicators (WDI) database. These indicators cover socio-economic topics such as poverty, education, health, economic growth, infrastructure, pollution, and many more. The World Development Indicators database is collected from a variety of official sources, including national statistical institutes, international organizations, and research institutes.

However, data availability and accuracy may vary across countries and indicators. The World Bank and other international organizations strive to ensure the accuracy and reliability of the data they compile, but limitations and discrepancies may exist due to differences in data collection methods and reporting practices across different countries.

3.4.3. **Population and Sample Selection**

In this study, the population consists of all countries, and they are categorized into two groups: developed and developing. The purpose of this categorization is to compare the effects of economic development on environmental pollution between these two groups.

From this population, a sample is taken to conduct the study. The sample includes a total of 50 countries, with 25 countries randomly selected from each category (developed and developing). The sample is chosen to represent a smaller subset of the population and is intended to be representative of the characteristics and trends observed in the larger population.

3.4.4. **Data and Data Collection Method**

This study will utilize secondary data analysis to conduct a quantitative analysis. The data collection method involves accessing and extracting the relevant data from the World Bank reports for the specified time. It will gather secondary data from reports issued by the World Bank spanning the period from 1980 to 2022.

3.4.5. Data Analysis

To achieve the objectives of the research study, which is to examine the impact of economic development on environmental pollution in developed and

developing countries, the data analysis of this study is done using panel data regression. Specifically, Excel is used for data organization, and EViews software for panel data regression analysis.

Descriptive statistics are used first in the data analysis process. Descriptive statistics will be calculated to summarize and describe key features of the data. This includes measures such as means, medians, standard deviations, and other statistical measures that provide insight into the central tendency and variability of the variables under study. Then the unit root test will be performed. Before conducting panel data regression analysis, it is essential to check for unit roots in the variables. Unit root tests help determine whether variables are stationary or show a trend over time. This step is important to ensure the reliability and validity of the regression results. Next, correlation analysis can assess the strength and direction of relationships between variables. This analysis helps identify any significant relationships between economic development and environmental pollution.

The next analysis is panel data regression. Panel data regression is a statistical method used to analyze data with both cross-sectional and time-series dimensions. It allows the examination of individual and time-specific effects on the dependent variable(s). EViews will be used to perform panel data regression analysis. It will help quantify the relationship between economic development and environmental pollution while controlling for other relevant factors.

Finally, hypothesis testing will be done. Here the specific hypotheses derived from the research objectives will be tested. Hypothesis testing is the comparison of observed data with expected results based on the null hypothesis and the alternative hypothesis. These measures help evaluate the statistical significance of the findings and determine whether the relationships between economic development and pollution are statistically significant.

By adopting this data analysis approach, researchers aim to uncover insights into the relationship between economic development and environmental pollution, provide evidence, and support or refute stated hypotheses

4. Results and Discussion
4.1. Descriptive statistics Analysis

Table number 2 and 3 respectively show the mean values of each variable used to study the impact of economic development on environmental pollution in developed and developing countries in this research.

Table 2: Descriptive analysis of developed countries

Developed countries					
Variables	Mean	Median	Maximum	Minimum	Std. Dev.
GDP	2.271912	2.358342	24.37045	-14.5311	3.549563
ECN	79.53004	85.23325	99.39174	25.11710	17.45717
CO2	8.870413	8.405999	20.46981	2.160457	3.482039

Source: EViews output

Table 3 Descriptive statistics of developing countries

Developing countries					
Variables	Mean	Median	Maximum	Minimum	Std. Dev.
GDP	4.011974	4.372019	57.81783	-64.0471	6.720315
ECN	70.28467	75.70916	99.80444	5.051140	24.20856
CO2	2.740651	1.847998	13.27041	0.047919	2.270997

Source: EViews output

The presented tables provide a comprehensive summary of the descriptive analysis conducted on a dataset comprising more than 800 observations. The analysis reveals that the mean value of the CO2 variable in developed countries is 8.870413, whereas, in developing countries, it is 2.740651. This discrepancy

indicates that, on average, developed countries exhibit higher levels of CO2 emissions compared to developing countries. The descriptive analysis reveals that the mean value of the energy consumption (ECN) variable in developed countries is 79.53004, while in developing countries, it is 70.28467. This discrepancy suggests that, on average, developed countries exhibit higher levels of energy consumption compared to developing countries. The analysis reveals that the mean value of the economic growth (GDP) variable in developed countries is 2.271912, whereas, in developing countries, it is 4.011974. This contrast in mean values suggests that, on average, developing countries experience higher rates of economic growth compared to developed countries. It is important to consider that further statistical analysis may be necessary to assess the significance of these differences between countries.

4.2. Correlation Analysis

Tables 4 and 5 provide an overview of the correlation analysis conducted for developed and developing countries, respectively.

Table 4 Correlation analysis of developed countries

Developed countries		
Variables	Correlation (CO2)	Probability (CO2)
GDP	-0.013161	0.7145
ECN	0.398859	0.0000

Source: EViews output

Table 5 Correlation analysis of developing countries

Developing countries		
Variables	Correlation (CO2)	Probability (CO2)
GDP	0.168613	0.0000
ECN	0.649893	0.0000

Source: EViews output

According to the correlation matrix presented in Table 4, the correlation analysis of developed countries reveals important findings. At a 95% confidence interval, there exists a positive correlation of 0.398859 between energy consumption (ECN) and CO_2 emissions. This correlation is not only positive but also statistically significant, as evidenced by the p-value of 0.0000, which is less than the predetermined significance level of 0.05.

Furthermore, in developed countries, a positive correlation of 0.013161 is observed between economic growth (GDP) and CO_2 emissions. However, this correlation is not statistically significant, as the associated p-value of 0.7145 exceeds the significance level of 0.05. Thus, the evidence does not support a significant relationship between economic growth and CO_2 emissions in this context.

Moving to Table 5, which focuses on developing countries, the correlation analysis yields significant results. At a 95% confidence interval, there is a positive correlation of 0.649893 between energy consumption (ECN) and CO_2 emissions. This correlation is not only positive but also statistically significant, as indicated by the p-value of 0.0000, which falls below the predefined significance level.

Moreover, a significant negative correlation of -0.168613 is observed between economic growth (GDP) and CO_2 emissions in developing countries. This negative correlation is statistically significant, as the associated p-value of 0.0000 is below the predetermined significance level.

4.3. Unit Root Test

Table 6 showed the probability values obtained from the unit root tests conducted on each variable in the study of economic growth effect on environmental pollution in developed and developing countries.

Table 6 Unit root analysis of developed & developing countries.

Developed countries		Developing countries	
Variables	Probability	Variables	Probability
GDP	0.0004	GDP	0.0000
ECN	0.0001	ECN	0.0000
CO2	0.0059	CO2	0.0000

Source: EViews output

The output obtained through Levin, Lin & Chu panel unit root test by unit root analysis is shown in Table 6 above. Accordingly, the probability value of the carbon emission variable (CO2) in developed countries is shown by 0.0059, energy consumption (ECN) by 0.0001, and economic growth (GDP) by 0.0004. All those values are obtained through Levin, Lin & Chu panel unit root test and the values are less than 0.05 in the level test. Accordingly, the alternative hypothesis can be accepted by confirming that the data series of developed countries is stationary.

The probability value of the carbon emission variable (CO2) in developing countries is 0.0000, and energy consumption (ECN) is 0.0000, obtained through Levin, Lin & Chu panel unit root test and the values less than 0.05 are stationary in the level test. Also, economic growth (GDP) has been stationary at less than 0.05 in the first difference test obtained through Levin, Lin & Chu panel unit root test from 0.0000. Accordingly, the alternative hypothesis can be accepted by confirming that the data series is stationary in developing countries as well.

Overall, all the probability values in developed and developing countries show less than 0.05. Accordingly, these probability values are stationary, and the alternative hypothesis is acceptable. The alternative hypothesis can be accepted

because the entire data series is stationary and the resulting data series is not unit root. Therefore, a panel data regression analysis can be performed.

4.4. Panel Data Regression Analysis

Tables 7 and 8 present the results of the panel data regression analysis conducted separately for developed and developing countries, respectively.

Table 7 Panel data regression analysis of developed countries

Developed countries		
Variable	Coefficient	Probability
GDP	-0.024872	0.44450
ECN	0.080043	0.00000
Constant (C)	2.561132	0.00000
R-squared	0.597261	
Adjusted R-squared	0.575492	
Prob(F-statistic)	0.000000	
Durbin-Watson stat	1.632131	

Source: EViews output

As shown in Table 7, the effect of independent variable (GDP) on the dependent variable (CO_2) is shown numerically according to the coefficient of developed countries. Accordingly, if ECN changes by one unit, then it has a positive impact of 0.080043 on CO_2 and if GDP changes by one unit, then it has a negative impact of -0.024872 on CO_2.

Table 8 Panel data regression analysis of developing countries

Developing countries		
Variable	Coefficient	Probability
GDP	0.045029	0.00000
ECN	0.060278	0.00000
Constant (C)	1.315333	0.00000
R-squared	0.640062	
Adjusted R-squared	0.638612	
Prob(F-statistic)	0.000000	
Durbin-Watson stat	1.803793	

Source: EViews output

As shown in Table 8, the effect of the independent variables (GDP) on the dependent variable (CO_2) is shown numerically according to the coefficient of developing countries. Accordingly, if ECN changes by one unit, then it has a positive impact of 0.060278 on CO_2 and if GDP changes by one unit, then it has a positive impact of 0.045029 on CO_2.

Hypothesis Testing

Aligning with the developed hypothesis based on the literature review, Table 9 showed the accepted and rejected hypotheses in the study considering the outputs in Tables 7 & 8.

Table 9 Hypothesis testing

Hypothesis	P-value	Status
H1: ECN significantly impact on the CO2 emissions in developed countries.	0.00000	Accepted
H2: ECN significantly impact on the CO2 emissions in developing countries.	0.00000	Accepted
H3: GDP significantly impact on the CO2 emissions in developed countries.	0.44450	Rejected
H4: GDP significantly impact on the CO2 emissions in developing countries.	0.00000	Accepted

Source: EViews output

4.5. Developing Final Fitted Model

The final fitted models provide valuable insights into the relationships between the independent and dependent variables and can be used for prediction, hypothesis testing, and decision-making purposes.

Table 10 shows the final fitted models for both developed and developing country categories according to the final fitted model created by the regression researcher based on the identified long-run relationships.

The basic Final Fitted Model can be developed as follows,

CO2it = C + β1 ENCit – β2 GDPit + εit

CO2it = Dependent Variable

C = Constant value

β1 ENCit = Coefficient of one independent variable (ECN)

β2 GDPit = Coefficient of one independent variable (GDP)

εit = Error term

Table 10 Final fitted model.

Basic Model	$CO2_{it} = C + \beta_1\ ENC_{it} - \beta_2\ GDP_{it} + \varepsilon_{it}$
Model 1: Developed countries	$CO2_{it} = 2.561132 + 0.080043\ ECN_{it} - 0.024872\ GDP_{it} + \varepsilon_{it}$
Model 2: Developing countries	$CO2_{it} = -1.315333 + 0.060278\ ECN_{it} - 0.045029\ GDP_{it} + \varepsilon_{it}$

Source: EViews output

4.6. Confirming EKC Theory

According to the analyzed data (Table 7), panel data regression analysis proved that energy consumption in developed countries has some positive significant effects on carbon emissions. But it was confirmed that economic growth has no effect on carbon emissions, i.e., it has a negative effect. Also, according to the analyzed data (Table 8), the panel data regression analysis proved that energy consumption in developing countries has some positive significant effect on carbon emissions, and economic growth also has a negative but significant effect on carbon emissions.

These findings are consistent with the theoretical expectations of the EKC hypothesis, which suggests that the relationship between energy consumption, economic growth, and carbon emissions follows an inverted U-shaped pattern as countries experience economic development and income growth. Initially, energy consumption and carbon emissions increase as countries undergo industrialization and urbanization. However, as income levels continue to rise, the negative effects of economic growth with the implementation of environmental regulations and advances in technology lead to a decrease in carbon emissions(Ridzuan et al., 2022).

5. Conclusion

According to the descriptive analysis findings, on average, developed countries exhibit higher levels of CO2 emissions. And, on average, developed countries exhibit higher levels of energy consumption. But on average, developing countries experience higher rates of economic growth compared to developed countries.

Correlation analysis can help assess whether these observed differences are statistically significant or occurred by chance alone. Specifically, in developed countries, energy consumption demonstrates a significant positive correlation with CO2 emissions, while economic growth does not exhibit a significant relationship with CO2 emissions. In contrast, in developing countries, both energy consumption and economic growth show significant correlations, with energy consumption positively associated with CO2 emissions and economic growth negatively associated with CO2 emissions.

All the unit root probability values in developed and developing countries show less than 0.05. Accordingly, these probability values are stationary, and the alternative hypothesis is acceptable. By assessing the stationarity of the variables through unit root tests, researchers can ensure the appropriate application of panel data regression models and draw reliable conclusions from their analyses.

Panel data regression analysis shows that ECN & GDP of developed countries are positively and negatively affected by CO2 respectively. Its ECN probability value is significant and GDP value is not significant. Also, in developing countries ECN & GDP positively and negatively influence CO2 respectively and both variables have a significant impact on CO2.

Accordingly, whether to accept or reject the formulated hypotheses is decided according to the probability value of the regression analysis. According to it, among the constructed 4 hypotheses, hypotheses 1, 2, and 4 are accepted, and hypothesis 3 is removed from the model.

The results obtained from this analysis will contribute to the existing body of knowledge and provide valuable insights for policymakers and researchers in the field. These results provide valuable insights into the environmental consequences of economic development in both developed and developing countries and promote a more environmentally friendly path of economic growth by emphasizing the need for sustainable policies and practices to reduce carbon emissions.

6. Future Research Directions

Finally, this research study emphasizes the need to address pollution through environmental regulations, sustainable practices, waste management, clean technologies, and public awareness. Limitations of the study such as the complexity of the topic and challenges associated with data accuracy must be acknowledged. These limitations provide opportunities for future research to delve deeper into this important area of study.

According to that, can conduct research to analyze the economic impact of pollution by exceeding identified thresholds and using other variables. Future studies can explore alternative data sources, employ advanced data collection methods, and collaborate with international organizations to improve data quality and access. And examining the role of technological advancements and innovation in mitigating environmental pollution can be a promising avenue for future research.

Overall, this research study lays the foundation for further analysis and investigation in subsequent chapters. It contributes to existing knowledge on the relationship between energy consumption, economic growth, and carbon emissions and provides valuable insights for policymakers and researchers striving for a more sustainable and environmentally conscious future.

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TRACK III-GENERAL MANAGEMENT

BEHAVIORAL IMPACT OF SOCIAL MEDIA USAGE ON THE ACADEMIC PERFORMANCE OF STATE UNIVERSITY STUDENTS IN SRI LANKA

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Abstract

Social media has become a vital feature of human lives, providing people with easy access to information and entertainment. Due to its widespread use among undergraduate students, it is a must to identify the relationship between social media usage and the academic performance of undergraduates. In this study, 392 undergraduates were selected using a voluntary sampling method to analyze the impact of social media usage on the academic performance of state university students in Sri Lanka. The study used correlation, regression, and demographic analysis techniques to evaluate the collected data. The results showed that all respondents use at least one social media platform, with the majority using more than one and spending more than an hour daily on social media. WhatsApp was the most widely used social media platform among undergraduates. Pearson's correlation coefficients were used to measure the correlation between social media use and undergraduate academic performance, and regression analysis was used to examine the relationship between variables. The findings revealed a substantial negative correlation between social media use and academic performance among undergraduates at state universities in Sri Lanka. The study suggests that students should control their social media usage and prioritize their academic tasks to mitigate this negative impact. In conclusion, social media has become integral to humans' day-to-day lives, particularly among undergraduate students. However, excessive social media usage can negatively affect academic performance. Therefore, students should be mindful of their social media usage and prioritize their academic work to avoid compromising performance.

Keywords: Academic performances, social media, state universities, undergraduates.

1. Introduction

The rapid evolution of Internet applications has fueled the growth of social media. Social media is used for various reasons, such as promoting and disseminating news worldwide. Social media platforms such as Facebook, Instagram, Twitter, WhatsApp, YouTube, Tick Tock, Snapchat, and LinkedIn have become increasingly significant elements of young adult life (Osharive, 2015). The Internet revolution altered the information world regarding information sharing, speed, storage, and retrieval in any form, regardless of a person's location. The growth of social media has had an influence on many aspects of society, both positively and negatively (Adzharuddin, 2014).

Communication, learning, research, and education have all been revolutionized and influenced by social media. Social media usage has grown with the development of the smartphone, allowing users to access different social networking sites with a few clicks (Alalwan et al., 2019). This has led to the widespread use of social media among many people, particularly among the younger generation globally.

Table 14: Social media usage by Age

Age	Percentage
18 – 29 yrs.	88%
30 – 49 yrs.	78%
50 – 65 yrs.	64%
65+ yrs.	37%

Source: Survey of U.S. adults conducted Jan. 25-Feb.8, 2021

According to the US Digital Year report, online time spent on social media accounted for 14.4% of time spent. Additionally, many instructors are beginning to utilize SNSs to better communicate with and among students in their classrooms, have class debates, and project cooperation to improve learning outcomes (Maqableh et al., 2015).

However, recent studies have found that students' addiction to social media usage might have a detrimental impact on their academic performance. Nuskiya (2017) showed that frequent texting, particularly on social networking sites, has been linked to harmful habits in the younger generation, including greater stress levels, poor academic performance, bad sleep patterns, and parental

permissiveness. The technology acceptance model shows that social media usage and the academic performance of university students have a direct correlation. Saha & and Guha (2019) observed that today's students are so involved in social media that they are online about 24 hours a day. According to Hashim & Kutbi (2015), students' motives to use social media are for various reasons.

Correlation analysis from the study by Larson (2015) indicates that social media usage was strongly and significantly negatively correlated with overall students' academic performance. This study has several important practical implications for lecturers, instructors, parents, and students. There is not much research in Sri Lanka to identify the influence of these factors on using social media (Liyanage, 2019). Therefore, this research mainly investigated a study on the behavioral impact of social media usage on the academic performance of state university students in Sri Lanka.

2. Literature Review

The popularity of social media networking services has grown rapidly in the past few years due to everyone exploiting it extensively to get global access. This has led to students spending a lot of time on social media, which can lead to a lack of balance between academic and non-academic activities (Malak et al., 2022). Additionally, students use social media to establish collaboration with their peers and to enable knowledge transfer from individuals to other group members, as well as to discuss academics. This allows students to participate in knowledge-sharing and conversation, obtain easier access to material, and generate a desire to study (Mushtaq, 2018).

2.1. Academic performance

Academic performance is a multidimensional concept comprised of three dimensions: the qualities of the student, the abilities of the teacher/lecturer, and the educational environment (Asadullah et al., 2020). Accurately evaluating academic performance is a critical component in educational planning for students, and measuring performance indicates how successfully pupils have met their educational objectives (Saha & Guha, 2021) .

2.2. Social media

Social media is a computer-based technology that enables students to produce, share, and exchange data, ideas, photographs, and videos for virtual communities and learners (Sivakumar, 2020). People are increasingly using

social media platforms such as Facebook, Messenger, YouTube, Skype, Snapchat, Tick Tock, WhatsApp, Viber, Instagram, and Twitter to connect with friends, relatives, and outsiders. Social networking sites also allow for community participation in locating expertise, sharing material, collaborating to create content, collaborating to create content, and allowing knowledge workers to broaden their professional ties (Nwazor & Godwin-Maduike, 2015).

Students use social media to access and share learning resources, collaborate and post content online, manage and coordinate schedules, gain motivation for serious academic studies, participate in peer education through interaction with other students, socialize and enjoy a sense of community belonging, communicate with their lecturers, gratify themselves self, and get amusement (Jegrace et al., 2017). However, students are devoting more time to activities involving social media rather than studying, which has a negative impact on their academic performance. The negative consequences of these social media platforms outweigh the positive ones, and these sites have unintentionally harmed society.

2.2.1 Positive impacts

ICTs (information and communication technologies) are rapidly becoming key educational assistance tools (Shahriar, 2014). Social media is about sharing and creating information, but all of these characteristics are extremely valuable in the context of higher education (Sivakumar, 2020). Social media makes it easier to obtain information, contribute information, and interact. Teachers and students are connected to one another and can utilize social media platforms to further their education (Profile, 2018). According to Asadullah et al. (2020), positive internet use for students and instructors is critical and must be used for academic goals.

The internet and other social media sites have a good impact on students and are used as educational tools. Positive internet use for students and instructors is critical and must be used for academic goals.

2.2.2. Negative impacts

It is important to recognize that time spent on social activities (such as Facebook or other forms of social media) can have a negative impact on academic achievement. A study of students at a Nigerian institution found a negative association between time spent on online social networks and academic achievement. Abdalla and Qashou (2020) emphasized that spending more time on social media has a negative impact on academic achievement. Asadullah et al.

(2020) and Kelzang and Lhendup (2021) also found that social media usage has a detrimental impact on students' academic performance at Bhutan Royal University. This research looked at the impact of social networking sites on students' study habits. The author determined that spending time on social networking sites substantially impacted study habits.

2.3. Social media usage

Studies have identified that undergraduates use social media for various goals, such as developing new and retaining existing relationships, learning about social activities at the university, and making social university adjustments (Ravichandran, 2019). Time spent on social media activities necessitates faster data transmission, and according to the News poll, 99% of teens aged 16 to 17 use social networks (Bhandarkar et al., 2021). Additionally, 78% of youngsters aged 8 to 9 visit sites like Facebook, where young people spend up to 7 hours daily (Adzharuddin, 2014). Additionally, the emergence of smartphones in recent years has increased the use of digital and social media platforms, motivating students to obtain more helpful material, interact with learning groups, and access other educational systems (Verbeij et al., 2021). Finally, using social media in education motivates students to obtain more helpful material, interact with learning groups, and access other educational systems.

Sivakumar (2020) and Al-Menayes (2015) both found that social media can combine knowledge into learning and research, save time, provide clear communication, and produce access to essential information. However, excessive use of modern technology (particularly online social networking) may be highly addictive to young people (Al-Menayes, 2015b). Mobile phones are portable, providing trouble-free Internet access regardless of time or location, and can be used while walking, taking public transportation, or driving a car. Social media addiction is caused by the fear of missing out, which can lead to a decrease in study time, a significant decline in grades, a loss of interest in extracurricular activities, and a lack of interest in classes Przybylski et al. (2013). It can also lead to a decrease in study time, a significant decline in grades, a loss of interest in extracurricular activities, and a lack of interest in classes.

The Parents and Teens 2006 Survey found that 55% of teens utilized social media frequently that year (Perifanou et al., 2021). Sago (2015) discovered a favorable association between the frequency of usage and various uses of social media in both males and females. A survey of 131 psychology students in the United States found that 57% of individuals surveyed utilized social media frequently. Frequency of usage depends on reading/responding to comments on

one's social media page and posts to one's wall, sending/responding to messages/invites (14%), and browsing friends' profiles/walls/pages (13%) (Tezer & Yildiz, 2017). The frequency with which people use the internet has also been linked to physical and mental health problems, and it may have a negative influence on both academic and family lives.

2.4. Behavioral impacts of social media Usage on academic performance

Researchers and scholars have conflicting reactions to the influence of social media on students' academic performance. Mingle and Adams's (2015) studies portray the role of social media in academic performance in a positive light, claiming that students form group discussions on social media to exchange ideas and communicate with their teachers. However, Kelzang and Lhendup (2021) discovered that neither social media usage intensity nor social activities done on these sites are systematically associated with students' academic performance, contradicting some earlier assertions. Arslan (2018) and Saha and Guha (2019) concluded that social media users socialize more than study. Adimora et al. (2016) found that most students use social media while studying, which may hurt their academic performance due to the distraction provided by social networks.

Higher rates of internet use in the classroom are linked to poorer academic performance. Leyrer-Jackson and Wilson (2017) found a considerable detrimental link between social media use and academic performance. A study of university students discovered that checking Posts on social media is often negatively related to their participation in educationally essential activities. In the Sri Lankan educational context, there is evidence that students' use of social media may affect their performance. This suggests that while some students use social networking sites for socializing, others may utilize them for learning activities (Athukorala, 2021). As a result, it appears likely that social media impact student performance.

2.5. Theories of social media usage on academic performance

This research was based on the theories of social learning theory, social information processing theory, media equation theory, operant condition theory, psychological theory, and technology acceptance model. Social learning theories recognize the role of media in influencing the social behavior of adolescents and children (Obxlie & Science, 2019). Operant condition theory states that learning is a function of change in overt behavior (Vicera & Ed, 2016). Psychological theory states that humans require a sense of belonging and acceptance, whether it comes from a large social group, such as clubs, office culture, religious groups, professional associations, sports teams, gang members, small personal connections, or even social networking sites (Vicera &

Ed, 2016). These theories have been used to understand the effects of media on social behavior.

The most critical details in this text are the social information processing theory, media equation theory, and technology acceptance model. The social information processing theory suggests that online interpersonal connections can be more effective than face-to-face communication (Gallardo et al, 2013). The media equation theory suggests that people respond to communications media as if alive (Profile, 2018). The technology acceptance model (TAM) investigates why users' attitudes and beliefs impact their approval or rejection of IT. Alalwan et al. (2019) proposed two distinct attitudes that affect one's behavioral intention to utilize a technology: perceived usefulness (PU) and perceived ease of use (PEOU). These theories explain how people become vulnerable to loneliness, social anxiety, and clinical depression when these aspects are missing.

2.6. Empirical review

This study focuses on the dimensions such as time spent, unique motives, addiction, frequency of usage, and the impacts of social media usage on university students' academic performance. Time spent on social media is used to entertain themselves or pass the time, while unique motives are used to express themselves and enjoy pleasure. Saha and Guha (2019) observed a significant relationship between university students' time spent on social media and academic performance. Arslan (2018) revealed a significant relationship between unique motives and academic performance, and the researcher proposed the unique motives of social media as a dimension for this study. Previous research has revealed that there are two forms of social media usage: addiction and habitual use.

Addiction develops when a person participates in a specific action without awareness or purpose, while habitual behaviors are linked to long-term participation in a habit. According to Haq and Chand (2012), social media users frequently log into their accounts daily several times to see if they have received new notifications. Kelzang and Lhendup (2021) show a significant relationship between the frequency of social media usage and academic performance.

3. Methodology

3.1. Conceptual framework
A conceptual framework is a structure that a researcher feels best explains the natural course of the topic under investigation (Adom et al., 2001). It is

connected to the concepts, empirical research, and critical theories employed in advancing and systemizing the researcher's knowledge (Nizam, 2018). According to the literature, the relationship between the independent variable and dependent variable effects on the social media usage of university students is as follows: the usage of social media depends upon time spent, unique motives, addiction, and frequency of usage of social media. Academic performance was a dependent variable, measured by dimensions of Quality of academic life, CFU, ongoing evaluations, and undergraduates' achievements.
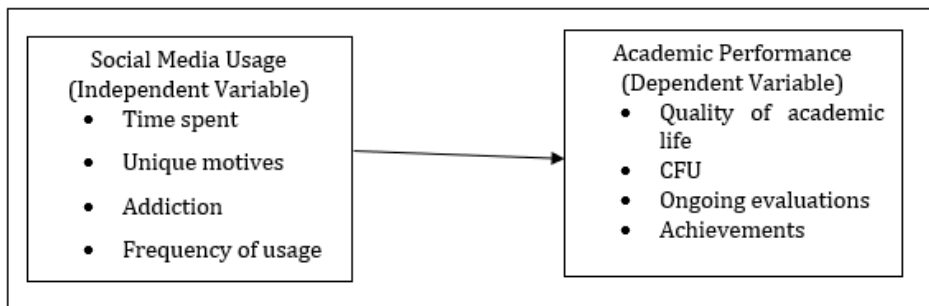
Figure 1: Conceptual Framework

3.2. Operationalization of variables

Operationalization is the process of converting abstract notions into measurable observations. It involves specifying how to measure, monitor, or modify a topic (Maqableh et al., 2015). Demographic factors are used to characterize a person's or population's characteristics, such as gender, university, academic year, social media sites used, time spent on social media, hours spent on social media, the purpose of using social media, period of using social media, and hours spent on academics. The terms operational definition and working definition describe operationalization, which involves creating a measuring tool that will allow precise data to be collected regarding particular occurrences. In order to operationalize a concept, indicators or variables must be chosen. The following table shows the operationalization summary of this study.

Table 15: Operationalization summary

	Variable	Dimension	Indicator	Q: No	Citation
Independent Variable	Social Media Usage	Time spent	- Relaxation and free periods.	TS_09	(Olufadi, 2016)
			- Academic-related periods.	TS_10	
			- Stress-related periods.	TS_11	
		Unique motives	- Socialize and make new friends.	UM_12	(Jamil et al., 2020)
			- Remain updated about trends.	UM_13	
			- Collaborate with fellow students and study on social media.	UM_14	
			- As a source of recreation and relaxation.	UM_15	
			- As an education tool.	UM_16	
		Addiction	- Cannot control the usage of social media.	AD_17	(Al-Menayes, 2015b)
			- I am interested in finding more friends on social media.	AD_18	

			- Unknowingly waste time on social media.	AD_19	
		Frequency of Usage	- Reading/responding to comments.	FU_20	(Tezer & Yildiz, 2017).
			- Sending/responding to messages/invites.	FU_21	
			- Browsing friends' profiles/walls/pages	FU_22	
Dependent variable	Academic performance	Quality of academic life	- Stress level.	QA_23	(Giunchiglia et al., 2018), (Marker et al., 2017), (Al-menayes, 2015)
			- Sleeping quality.	QA_24	
			- Grade Point Average (GPA)	QA_25	
		Credito Formativo Universitario (CFU)	- Attendance Rates.	CFU_26	(Giunchiglia et al., 2018)
		Ongoing Evaluation	- Lecturer satisfaction.	OE_27	(Giunchiglia et al., 2018)
		Undergraduates Achievements	- Engage in extracurricular activities. (Intended learning)	UA_28	(Umar & Idris, 2018)

Source: Author Created

3.3. Type of the study

This study is focused on explanatory work to find out the Behavioral Impact of Social Media Usage on the Academic Performance of State University Students in Sri Lanka. Explanatory research is a study approach that investigates why something happens when there is minimal information available. It aids in the comprehension of a certain issue, determines how or why a specific phenomenon occurs, and anticipates future occurrences.

3.4. Nature of the study

The researcher used a deductive approach for this research, which also belongs to the explanatory area of study. This study shows how hypotheses were created from previous researchers' current theories and then used to lead the data collection process so that they may be evaluated. As well as this research involved the collection of numerical data by using questionnaires, so this research was quantitative.

3.5. Research Strategy

A research strategy is a comprehensive plan for carrying out a research investigation (Thomas, 2001). A research strategy directs the design, execution, and monitoring of an inquiry. While the research strategy provides vital, high-level assistance, it must be supplemented with research techniques that help direct the study effort on a more technical level. Approaches of research instruct the researcher on how to acquire and interpret data, such as through interviews, questionnaires, or statistical methods.

As a result, a research strategy provides high-level advice, but a research method may be considered a methodology or instrument for carrying out a given activity because there are several research techniques available, a researcher embarking on a study must decide which one to use. The study's objectives and features determine the decision. As a result, the researcher chose a structured questionnaire as the research strategy.

3.6. Unit of analysis

The unit of analysis is the primary entity being studied in a study. The 'what' or 'who' is being investigated. Individuals (the most frequent unit of analysis in social science research), groups, and social organizations are the most prevalent units of analysis. The unit of analysis of this research is individuals.

3.7. Population

The population of this study consists of 354,697 state university students who study in the 16 state universities in Sri Lanka, according to the Sri Lankan University Statistics 2021.

3.8. Sampling

Based on volunteer sampling, a sample size of 392 male and female state university undergraduates were selected for data collection. The following formula was used to determine the sample size.

$$\text{Sample size} = \frac{\dfrac{z^2 \times p\,(1-p)}{e^2}}{1 + \left(\dfrac{z^2 \times p\,(1-p)}{e^2 N}\right)}$$

Equation1: Sample Size Calculation Equation

N = population size

e = Margin of error (percentage in decimal form)

z = z-score

3.9. Data collection and method of analysis and evaluation

All the responses were collected from 392 volunteer undergraduates from Sri Lankan state universities through a structured cross-sectional online questionnaire and were accessed using a 5-point Likert-type scale with anchors 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, and 5= strongly agree.

Descriptive, correlational, and regression analysis were used to analyze the data. Descriptive Statistics measured variability and measures of central tendency, while measures of central tendency included the mean, median, and mode. Correlation coefficients were used to determine the link between the items for the dependent and independent variables. A regression analysis was used to test hypotheses, which can be used to estimate how closely variables will be related in the future and gauge how strong the relationships between them now are.

4. Result and Discussion

Research results demonstrate that undergraduate students at state universities have access to social media and that their frequency of usage during lectures is high. According to the pilot survey done before the research study, 82% of respondents agreed with that statement, confirming this fact. And also, the majority of them were logged in for entertainment purposes. The effect of this is that students at state universities have access to social media and use it for various reasons during lectures. According to the gratification's theory, viewers utilize the media to achieve various purposes; this is in line with what was stated.

Table 16: Test of reliability and validity

Variable	Alpha	No of Questions
Social Media Usage	0.920	14
Academic Performance	0.820	06

Source: Survey Data

Table 3 shows the reliability of the independent dependent variable value. The typical range for values is 0.7 to 1.0. The alpha value indicates highly reliable variables if they fall within that range. As per the table, Cronbach's alpha value of the independent and dependent variables ranged from 0.920 and 0.820, which fulfills the relevant accepted level of reliability. The table shows that all the evaluation tools utilized to assess the independent and dependent variables were internally consistent.

Table 4: Results of descriptive statistics

Variable	Mean	Std. Deviation	Skewness (Std. Error)
Social Media Usage	4.2633	.50223	.123
Academic Performance	2.2568	.39815	.123

Source: Survey Data

Table 4 shows the value of the descriptive statistic between social media usage and academic performance. So, the standard deviation and the mean value of social media usage and academic performance help to understand the descriptive behavior of undergraduates.

Table 5: Result of correlation analysis

		Social Media Usage	Academic Performance
Social Media Usage	Person Correlation	1	
	Sig. (2-tailed) N	392	
Academic Performance	Person Correlation	-.663**	1
	Sig. (2-tailed) N	.000 392	392

**. Correlation is significant at the 0.001 level (2-tailed).

Source: Survey Data

Table 5 shows the correlation value between social media usage and academic performance. According to the table, the Pearson correlation value was -0.663**. The nature of the strength of the relationship between social media usage and academic performance correlation is significant at the 0.01 level. So, a significant strong negative (-0.663) relationship existed between social media usage and academic performance because the significant value is less than 0.01 or 0.05 as well.

Table 6: Result of regression analysis

Model	R	R. Square	Adjusted R. Square	Std. Error of the Estimate
1	.663a	0.439	0.438	0.29854

Source: Survey Data

Table 6 shows a model summary of the independent and dependent variables. According to the table, the R square value is 0.439. It described that 43% of academic performance can be explained by social media using this model. So, 57% of other factors can affect academic performance.

Findings further show that WhatsApp was the social media platform that undergraduates at state universities use most, besides Facebook, Instagram, Imo, Snapchat, Twitter, YouTube, Tick Tock, Telegram, Messenger, Linked, and Skype. This is proven by the 72.2% of respondents who agreed that WhatsApp was the social network most used. Similar findings can be found in Table 5

(correlation analysis table), which demonstrates that social media significantly and negatively impacts the academic performance of the undergraduates of state universities in Sri Lanka. It can demonstrate what is shown in Figure 2.
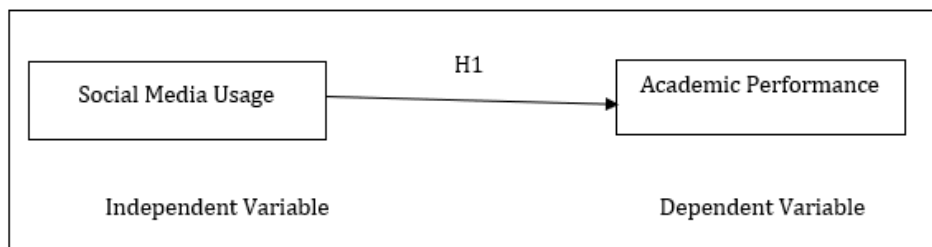
Figure 2: Relationship between the independent and dependent variable

And also regression results concluded that the independent variable negatively affected the dependent variable. So, it accepted the significant impact of social media usage on the academic performance of state university students in Sri Lanka.

The academic performance of students who use social media more frequently was at risk, which this study proved. That was because they spend time on social media during lecture time instead of doing learning activities. This negatively impacts their academic performance.

5. Conclusion

This research aims to identify the behavioral impact of social media usage on the academic performance of state university students in Sri Lanka. First, researchers conducted a pilot study to determine what tasks students perform on social media and how much time they spend on these platforms over their academic lives.
After that, a review of the literature from earlier studies that were connected to the topic was undertaken.

Frequency distribution was used to test the demographic profile. The reliability of the independent variable was 0.920, and the reliability of the dependent variable was 0.820, which is satisfactory. Disruptive statistical procedures are used for data analysis once the reliability has been checked and then identified the strong negative relationship between the independent and the dependent variable by using correlation analysis. Finally, regression analysis was used to test the hypothesis.

The majority of the respondents agreed that using these social media does not help to sufficiently prepare them for their ongoing evaluations and exams, and

also they believed that the habit of using those sites discouraged them from concentrating on their studies and extracurricular activities.

And also, respondents acknowledged that it was their routine habit to use social media sites during lecture time, and sometimes it was a kind of addiction. They also agreed that their usage of social media sites negatively affects their academic performance and decreases their quality of academic life.

The most critical details in this study are that undergraduates in state universities in Sri Lanka should be aware of the underlying issues that can cause their use of social media and should improve their real-world friendships. They should also spend less time on social media and focus more on academics. They should establish and follow realistic internet usage objectives, and the procedure for breaking social media habits should be changed. Additionally, those who want to achieve excellent academic performance should keep away from inappropriate social media use. Finally, the internet and social media should be used beneficially so that social media can be used as a vital tool in learning rather than just for personal entertainment.

The current study was not exempt from this potential scope, as is customary with any studies. Firstly, due to a time shortage, the researcher collected data through Google Forms. So, the results depend only on respondents' opinions and their mindsets. Moreover, the researcher considered only state university students. However, the features of state university students are often comparable in most circumstances. But in future research, it can be used for private universities and higher education institutions in Sri Lanka as well.

The researcher used only four dimensions for this study: time spent, unique motives, addiction, and frequency of usage. There was also only one independent variable, which was social media usage. A few more variables that impact academic success can be considered in addition to the four main dimensions that were the focus of this study.

The modified R square value in this study indicates a restriction and the necessity for additional in-depth research in this area. In order to boost the significance of the research, the researcher highly suggests that future researchers can include additional factors in their studies.

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FACTORS INFLUENCING ON THE BEHAVIOURAL INTENTION OF THE UNIVERSITY UNDERGRADUATES FOR E-LEARNING DURING THE COVID-19 PANDEMIC: A CASE STUDY IN UNIVERSITY OF KELANIYA SRI LANKA

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Abstract

E-learning refers to a wide range of educational activities and acquiring new knowledge based on electronic platforms. It has become increasingly popular because of its flexibility, accessibility and cost-effectiveness. During the days of Covid-19, it has been particularly relevant due to the growth of remote work and distance education. Students' acceptance of e-learning is important because it is associated with their engagement in education. This study aimed to assess the factors influencing the behavioural intention of E-learning of undergraduates related to the University of Kelaniya, Sri Lanka. A quantitative explanatory approach has been used in this research work. Further, the sample was selected randomly and used a simple random sampling technique. This is a cross-industry descriptive research, and a standard questionnaire was used to collect primary data through a survey. Questionnaires are distributed to a sample of undergraduates at the University of Kelaniya. SPSS (Statistical Package for Social Science) was used to analyse the data collected from the questionnaire. To test the relationship between variables, the Pearson correlation technique analysis was used. Simple regression analysis was used to identify the degree of the impact of the independent variable on the dependent variable. Also, it was found that there is a significant moderate positive relationship between performance expectancy, effort expectancy, social influence, hedonic motivation and work-life quality on the behavioural intention of e-learning. The present study provides the direction to educational institutions, educational policymakers & other non-government educational institutions.

Keywords: Behavioural intention to use E-learning, effort and performance expectancy, hedonic motivation, social influence, work-life quality.

1. Introduction

Learning intentions specify what a student must learn to complete the activity successfully (Clarke, 2013). Intentions have been defined in the Theory of response amount/Theory of Planned Behavior as the amount of effort one is willing to exert to attain a goal (Ajzen, 1991). Also, in the context of e-learning, behavioural intention refers to the user's wish to accept the e-learning systems and e-learning methods (Salloum et al., 2019). Another Boston University study defines behavioural intention as the motivational factors that influence a specific behaviour; the stronger the intention to perform the behaviour, the more likely the behavior will be performed (Díaz & Caminero, 2020).

Society has evolved to be technology-driven, and different types of developments in information and communication technology (ICT) and its application in all facets of human life have seen immense changes in the global landscape of education. Vidakis & Charitakis (2018), The Effect of the COVID-19 pandemic on educational institutions, worldwide has interrupted the conventional teaching and learning method, ultimately creating the demand for online classes. In the background of the study, the aim is to find out students' perception towards intention on online-class during the COVID-19 pandemic. Nowadays, the situation in Sri Lanka and around the world that the Covid 19 pandemic from China affects everyone and everywhere. Covid 19 caused a series of transformations in the different spheres of social, educational, political, labour, and economies worldwide (Díaz & Caminero, 2020).

1.1 Statement of the problem

E-learning caused an increase in the dropout rate of students, and previous researchers found that this e-learning system has a higher dropout rate than face-to-face learning programs (Bawa, 2016). Therefore, it is significant to investigate the factors that affect the e-learning intention of learners which helps to pay more attention to addressing these issues and assist students in learning better (Bawa, 2016). A research study by Heyman (2010) says that one of the biggest concerns in online education emanates from the excessively high attrition rates in fully online programs compared with traditional classes. Also, another research study revealed that students' retention rate with this online education has increased by 10% to 20% when compared with the traditional face-to-face educational system (Herbert, 2006). A total 40% to 80% of online drop out of online classes (Smith, 2010).

Another research study has found that the results showed that behavioural intention (BI) was significantly influenced by performance expectancy, social influence, habit, hedonic motivation, self-efficacy, effort expectancy and trust, in their order of controlling the strength and explained 70.6 percent of the variance in behavioural intention (Tarhini et al., 2017).

Also, another research study has found that learning through e-learning methods has increased the stress level of e-learners as well as it has caused to raise the possibility of depression and anxiety disorders among undergraduate university students (Fawaz & Samaha, 2020).

Bączek, Bączek, & Szpringer (2020) investigated the undergraduate's perception of online during the Covid-19 Pandemic in Poland. The results show that the majority of the students had never experienced any form of e-learning before the pandemic. Hence, they identified technical issues as one of their key challenges. The result might stem from the fact that the students were not previously exposed to online learning due to inadequate awareness and accessibility to the facilities required.

Another research study conducted at Liaquat College of Medicine and Dentistry by (Abbasi, Ayoob, & Malik, 2020) surveyed towards university students' perception of e-learning during the lockdown. The majority of the students have negative perceptions of e-learning education. The study conveyed that there is a need for the administration of e-learning, and faculty heads should take crucial measures to improve e-learning during the lockdown.

Considering the factors discussed, the research problem analysed in the present study **is** "What are the factors influencing the behavioural intention of e-learning among undergraduates at the University of Kelaniya in Sri Lanka with Covid 19?"

1.2 Specific objectives

The following specific objectives have been developed to support the achievement of the above main objective.

  i. To assess the impact of performance expectancy on the behavioural intention of e-learning among university undergraduates in Sri Lanka during Covid 19.
  ii. To assess the impact of effort expectancy on the behavioural intention of e-learning among university undergraduates in Sri Lanka during Covid 19.
  iii. To assess the impact of hedonic motivation on the behavioural intention of e-learning among university undergraduates in Sri Lanka during Covid 19.
  iv. To assess the impact of social influence on behavioural intention of e-learning among university undergraduates in Sri Lanka during Covid 19.
  v. To assess the impact of work-life quality on the behavioural intention of e-learning among university undergraduates in Sri Lanka during Covid 19.

1.3 Significance of the study

With the impact of COVID-19, there have been lots of improvements in the online education systems and methods. With the adoption of e-learning, students' perspectives towards online education and e-learning methods.

Measuring the students' perspectives towards online education and e-learning methods is important. This study will be useful and beneficial for the students' undergraduates, and lecturers to identify the impact of the factors influencing behavioural intention to use e-learning. By identifying those factors, any educational institution can develop e-learning educational methods that are ideal to the students' expectations as well as teaching styles the way students are expected. That will improve the students' participation and the e-learning process's success. This study could be useful for future researchers as a source of information for future studies that would be carried out on e-learning-related topics because future researchers can get a clear idea of undergraduates' intentions toward the e-learning process in Sri Lanka. The current study will consider the Sri Lankan state sector university students, who will represent many university students in Sri Lanka. Because, still, state sector university undergraduates represent a high percentage of undergraduates in Sri Lanka.

Also, the current study's findings will be helpful for the long-term decision-making process. Management of the educational departments can be aware of the learners' perception towards e-learning. And this will be important for the management of the educational departments to develop educational policies and procedures by maintaining a good awareness towards the undergraduates under Covid-19. This report will present significant information useful to the literature for future researchers and everyone interested in reading or learning about the impact of perceptional aspects on intention to e-learning. The research study has referred to many journal articles and publications related to the undergraduate's perceptions of online education.

2. Literature Review

2.1 Behavioural intention to use

In this study's context, the BI determines users' wish to accept e-learning systems. (Salloum, Mostafa Al-Emran, & Shaalan, 2019) BI means the intention of individuals to use e-learning systems from existing methods of learning in the future. It is considered a precursor of use behaviour. It signals the indication of users' readiness to carry out a specific behaviour. Past studies (Viswanath Venkatesh, 2003; Venkatesh & Davis, 2000; Davis, 1986) have validated that individuals' actual use of electronic systems is directly influenced positively by the intention to use such systems and in the e-learning systems context. (Tarhini et al., 2017).

2.2 Performance expectancy

Performance Expectancy (PE) is defined as the degree of individual belief that an e-learning system will help attain the job performance of the employees (Viswanath Venkatesh, 2003). This means how much the individual may believe the use of particular information for their day-to-day work and if they adopt the

information system, what are the additional benefits for them. When aligning the information systems with the e-learning context, e-learning may assist the e-learners to do their learning activities instantly and conveniently in addition to that, e-learning helps to uplift the learner's skills and performance. PE has been a predictor of intention to use new e-learning technologies among the learners in the banking sector (Alalwan et al., 2018), Mobile Banking (Alalwan et al., 2018) as well as social media, and e-government (Sharma, 2015). PE is defined in this study as the degree to which a user believes that using an e-learning system will improve or increase educational performance. According to existing literature, it can be seen that PE has a significantly positive association with BI to the use of e-learning systems.

2.3 Effort expectancy

Effort Expectancy is defined as "the degree of ease associated with consumers' use of technology" Venkatesh & Thong (2012) effort expectancy (EE) can be used to measure the degree of comfort connected to the use of information systems Viswanath Venkatesh (2003) as well as without making an extra effort, he or she can use the information technology (Sharma et al., 2016). It reflects the ease of use the users experience when using technology. E-learning is still in the development stage, and that will always be changing due to innovation hence, EE is seen to be one significant factor affecting the behavioural intention of e-learning. Easiness and user-friendliness of -learning systems will impact the acceptance of e-learning systems and the intention to use E-Systems. (Salloum, Mostafa Al-Emran, & Shaalan, 2019). Many of the former research studies by Sharma et al. (2016) have shown that EE positively influences the intention to use e-system. This study assumes that if a learner finds an e-learning system simple to use, they are more likely to accept it.

2.4 Social influence

Social Influence (SI) is "the degree to which an individual perceives that important others believe he or she should use the new system". (Viswanath Venkatesh, 2003) SI refers to the effect that others' opinions on someone's intention to use e-learning systems. It is the effect that others' opinion has on someone's intention to use an information system (Zhou, 2011). When people get some recommendations from recognized persons, it causes them to use a particular technology. (Bagozzi & Lee, 2002) SI will influence people to use technology when they receive some opinions from their family members, relatives' personalities, and socially recognized and recognized people (Riquelme & Rios, 2010) It is the degree of realization one has about how others feel that he or she should use a new information system. Research conducted by Viswanath Venkatesh (2003) proposed in the UTAUT model that SI captures the role of social factors, image and subjective norms. SI has been validated in many studies as a significant influencing factor that determines people's intention to

use technological innovations like e-learning systems. (Alalwan et al.,2018; Tarhini et al., 2017; Alzeban, 2016) So, this study assumes that individuals' intention to use e-learning systems is influenced by the beliefs of their lecturers, instructors and colleagues.

2.5 Work-life quality

Work-life quality (WLQ) means the perception or the faith somebody has that when using technology, their quality of work would improve; in this case, the usage of an e-learning system is supposed to improve students' learning process by bringing savings for them in terms of time and cost when they download learning materials and literature or making communications with their colleagues or teachers. (Ali, Qazi, Puah, & Raza, 2018). While many studies (Tarhini et al., 2017; Kripanont, 2007) on the acceptance of technology have investigated the importance of work-life quality, the number of studies that focus on the area of e-learning is very low. (Tarhini et al., 2017) Hence, this study attempts to test the impact of WQL on e-learning system acceptance, as done by Ali, Qazi, Puah, & and Raza (2018), in the Sri Lankan context. Past studies (Tarhini et al., 2017) have proved that WLQ has a significant impact on the intention to use e-learning systems. Hence, it is evident that WLQ can be one of the better predictors of an individual's intention to use e-learning systems. Therefore, the following hypothesis is proposed:

2.6 Hedonic Motivation

Hedonic Motivation (HM) can be defined as "the fun or pleasure derived from using a technology." (Venkatesh & Thong, 2012) This hedonic motivation tries to refer to the perceived enjoyment and the perceived entertainment in using technology. (Venkatesh & Thong, 2012). Thus, previous research done by Venkatesh & and Thong (2012) has added this HM to the UTAUT2 model. this will be a pleasure of having the technology to complete the task. The innovativeness found in a new system brings the HM's key influence. (Venkatesh & Thong, 2012) Also in previous studies this has been identified as an important factor in identifying the user's intention to use technologies (Alalwan et al., 2018; Tarhini et al., 2017) Therefore when the usage of an e-learning system keeps users joyful, then they are more inclined to use such system. (Ali, Qazi, Puah, & Raza, 2018; Abbasi, Ayoob, & Malik,2020).

2.7 Relationship Between Behavioural Intention and E-Learning

A comprehensive understanding related to e-learning causes to individual's perception of learning by using electonic modes and enage in electronic-based learning activities. Thus, gradually tend to factor to e-based system success (Li, Duan, Fu, & Alford, 2012). According the scholarly articles has pointed out most of the time, social context prefers to use e-learning for their studies more than the system, individual and organisational contexts (Park, 2009).

3. Methodology

3.1 Conceptual framework

Independent Variable   **Dependent Variable**
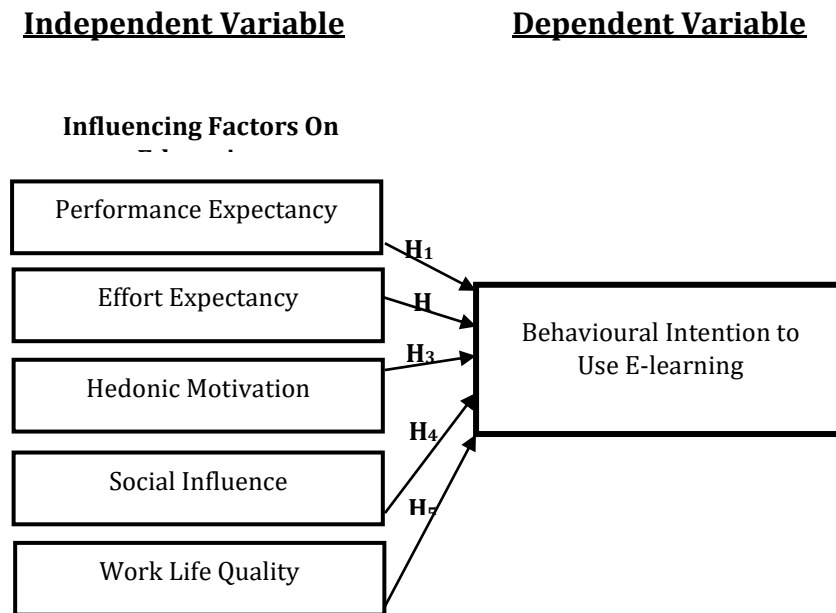
Figure 6: Conceptual Framework of the Study

Behavioural intention to use e-learning represent the dependent variable of the study, and the independent variable includes five exogenous variables with the support of extant literature recognized under the influencing factors on e-learning (Tarhini et al., 2017).

3.2 Advancing Hypothesis

Considering the evidence in previous literature recorded in this study, performance expectancy, effort expectancy, social influence, hedonic motivation, and Work life quality is recognized as the independent variable, while the behavioural intention to use e-learning is recognized as the dependent variable.

Accordingly, the following hypothesis was drawn to find out whether the relationships theorized in the conceptual framework hold,

H1: Performance expectancy has a significant impact on the behavioural intention of e-learning among the undergraduates at the University of Kelaniya.

H2: There is a significant impact of effort expectancy on the behavioural intention of e-learning among the undergraduates at the University of Kelaniya.

H3: Social influence has a significant impact considerable effect on the behavioural intention of e-learning among the undergraduates at the University of Kelaniya.

H4: Work-life quality has a significant impact on the behavioural intention of e-learning among the undergraduates at the University of Kelaniya.

H5: Hedonic motivation has a significant impact on the behavioural intention of e-learning among the undergraduates at the University of Kelaniya.

3.3 Overall Research Design

This study on "Factors influencing the behavioural intention of the university undergraduates on e-learning during the covid-19 pandemic "relates to the University of Kelaniya. This was a quantitative study to find the solution to the research problem of "What are the factors influencing the behavioural intention of e-learning among undergraduates at the University of Kelaniya in Sri Lanka with Covid 19?". Moreover, this explanatory study was used to test the formulated hypothesis and establish relationships in the model. Further, a cross-sectional examination is a collection of information gathered for a specific purpose. This field study examined the factors influencing the behavioural intention of e-learning among university undergraduates with special reference to the University of Kelaniya in Sri Lanka. The unit of examination was at the individual level, undergraduates at the University of Kelaniya. Data was collected pre-tested, standard questionnaire that had met the accepted standards of validity and reliability in the collected data was analyzed using Statistical Package for Social Science 23.0 (SPSS). Further, frequency analysis, correlation test and regression analysis were used to analyze data to test the advanced hypotheses.

The study population consists of 2000 undergraduates at the University of Kelaniya in Sri Lanka, and adhering to Morgan's table calculation, a 322-sample size was considered to distribute the questionnaire. Concerning the current study, the researcher knows the total elements in the population. Hence, the researcher used a probability sampling technique. In this case, the researcher selected a simple random sampling method due to an equal probability of being chosen for every single element in the population. The researcher obtained a list of undergraduates registered in an academic year. Then, the researcher selected random numbers using an online random number generator.

3.4 Research instruments

The developed questionnaire contained three (03) sections and a cover letter. Using a covering letter facilitates the researcher to convince the participants of the current research's purpose and general information. The first section of the

questionnaire comprised five questions (1-3) which helped the researcher to collect demographic information about the selected sample of the study that will assist the researcher to elaborate on the sample characteristics in the research. Under the second section of the questionnaire, the researcher used Tarhini et al., (2017), twenty-five (20) items with the seven-point Likert scale to assess the independent variables (performance expectancy, effort expectancy, attitude, social influence and work-life quality.) of the study. In the third section of the questionnaire, includes five (5) items with a seven-point Likert scale option, which assesses behavioral intention to use e-learning (Samsudeen & Mohamed, 2019).

4. Data Analysis and Results

The questionnaire was distributed among 322 undergraduates of the University of Kelaniya. 273 of undergraduates responded for the questionnaire & and due to the incomplete data had mentioned 12 responses had discarded. Hence, 261 sample responses consider for the statistical analysis. And it resulted in an 81.06% response rate out of the total sample. Further, responses were eligible for analysis through SPSS.

Table 1: Response Rate

No. of questionnaires distributed	No. of responses received	No. of responses discarded	No. responses considered	Effective Response Rate
322	273	12	261	81.06%

Source: Analyzed data

4.1 Reliability

To ensure the reliability of the measurement scales, internal consistency statistics were used. As recommended by Nunnally (1978), construct reliability and the dimension reliability was assessed using Cronbach's Alpha coefficient. Cronbach's Alpha values of all the variables are greater than 0.7 indicating that the multi-item scale is reliable at a greater level, and all the items have played a significant role in conceptualizing the respective constructs. Further, all the items except two reached corrected item correlation values over 0.7 Cronbach's Alpha values indicating that there is greater internal consistency in the measurement scales. It can be justified that one item takes a lesser inter-correlation value because it is a reverse-coded item, whereas the other item takes a value above 0.5 which could be considered considerable inter-correlation.

4.2 Validity

According to the validity statistics, the cumulative percentage of the Extraction Sums of Squared Loadings (ESSL %) of the two constructs and their dimensions are greater than 50%, and the item Factor Loading (FL) values are above the threshold limit of 0.5 as recommended by Hair (2010). So that, statistically, the construct validity is ensured.

4.3 Correlational

The Pearson Correlation Coefficient was used to assess the strength of association among the variables in which the influencing factors on e-learning & behavioural intention to use e-learning. Further, Sig. (2-tailed) test was applied to test the significance of the correlation coefficient as the advanced hypothesis was non-directional. According to the results,

Table 2: Correlational Statistics

Dimension	Correlational Coefficient	Sig Value (Less than 0.01)	N	Correlation Result
Performance Expectancy	0.594	0.00	261	Moderate Positive Correlation
Effort Expectancy	0.603	0.00	261	Moderate Positive Correlation
Social Influence	0.466	0.00	261	Moderate Positive Correlation
Hedonic Motivation	0.487	0.00	261	Moderate Positive Correlation
Work-life quality	0.553	0.00	261	Moderate Positive Correlation

Source: Analyzed data

According to the results of the study, it is revealed there is a moderate positive correlation between Performance Expectancy, Effort Expectancy, Social Influence, Hedonic Motivation, Work life quality & behavioural intention to use e-learning. All the variables resulted in a positive correlation higher than 0.5 of the correlational coefficients.

4.4 Regression

Linear Regression analysis was used for analyzing the impact of each identified factors on behavioural intention to use E-Learning. The results were depicted as follows.

Table 3: Regression Statistics

Hypothesis	R Square value	Sig Value (Less than 0.05)	N	Regression Result
H1	0.352	0.000	261	There is a significant impact
H2	0.364	0.000	261	There is a significant impact
H3	0.217	0.000	261	There is a significant impact
H4	0.237	0.000	261	There is a significant impact
H5	0.306	0.000	261	There is a significant impact

Source: Analyzed data

The sample responses were analyzed based on the R square values & the sig. the value which is less than 0.05. Accordingly, the sample of the study depicted positive R square values with sig. values less than 0.05. It depicted that there is a significant impact on the behavioural intention to use e-learning. As well as the results shown that there is a substantial impact of the factors which affect the influencing factors towards e-learning on the behavioural intention to use e-learning.

4.5 Coefficient

Table 4: Coefficient Statistics

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.846	.206		8.955	.000

Performance Expectancy	.566	.048	.594	11.874	.000
(Constant)	1.851	.201		9.212	.000
Effort Expectancy	.566	.047	.603	12.162	.000
(Constant)	2.779	.179		15.528	.000
Social Influence	.362	.043	.466	8.465	.000
(Constant)	3.372	.104		32.416	.000
Hedonic Motivation	.242	.027	.487	8.964	.000
(Constant)	2.523	.166		15.193	.000
Work-Life Quality	.426	.040	.553	10.680	.000
a. Dependent Variable: Behavioural Intention					

Source: Analyzed data

Finally, all the hypotheses (H1, H2, H3, H4, and H5) were accepted using correlation statistics, regression statistics, and coefficient statistics.

5. Discussion and Findings

The primary objective of this research was to assess the impact of performance expectancy, effort expectancy, social influence, hedonic motivation and work-life quality on the behavioural intention of e-learning of university undergraduates at the University of Kelaniya, Sri Lanka. In addition to that, it was focused on studying the possible impact of each independent variable (performance expectancy, effort expectancy, social influence, hedonic motivation and work-life quality) on the behavioural intention of e-learning. Five hypotheses were formulated based on the study's objectives and verified based on the results of Pearson's Correlation analysis and Simple Regression analysis.

According to previous research findings, most researchers found the factors influencing behavioural intention to use e-learning. According to the research conducted by Ali, Qazi, Puah, & Raza (2018); Samsudeen and Mohamed (2019), performance expectancy, effort expectancy, social influence, hedonic motivation and work-life quality positively impacted behavioural intention to use e-learning By considering the researcher's findings of correlation analysis and simple regression analysis, this study found a significant positive

correlation between PE, EE, SI, HM, WLQ on BI to use e-learning. It was shown that identified influencing factors based on the literature directly impact the behavioural intention to use e-learning of the undergraduates at the University of Kelaniya. Results of the Correlation analysis and Regression analysis clearly showed a moderate positive and strong positive correlation between a dependent variable and independent variables of the study.

Further, the researcher has found that, several influencing factors on behavioural intention to use e-learning. According to the results of Pearson's Correlation analysis and Simple Regression analysis, it was proven that they have a moderate positive correlation between performance expectancy and behavioural intention to use e-learning. This was proven by the previous research conducted by (Ali, Qazi, Puah, & Raza, 2018; Samsudeen & Mohamed, 2019), which showed there was a positive impact from PE on BI to use e-learning relevant to Sri Lankan context. Hence, the researcher suggests previous research findings and current research findings were the same in the Sri Lankan context without considering the contextual differences and perception differences.

As per the statistical evidence of the study, according to the results of Pearson's Correlation analysis and Simple Regression analysis, it was proven that there is a moderate positive correlation between effort expectancy and behavioural intention to use e-learning. This was proven by the future research conducted by (Ali, Qazi, Puah, & Raza, 2018; Samsudeen & Mohamed, 2019), which showed there was a positive impact from EE on BI to use e-learning relevant to Sri Lankan context.

Moreover, the researcher has found that a moderate positive correlation between social influence and behavioural intention to use e-learning. This was proven by the future research conducted by (Ali, Qazi, Puah, & Raza, 2018; Samsudeen & Mohamed, 2019), which showed that there was a positive impact from SI on BI to use e-learning relevant to Sri Lankan context. Hence, the researcher suggests previous research findings and current research findings were the same in the Sri Lankan context without considering the contextual differences and perception differences.

Furthermore, the researcher has found that a moderate positive correlation between hedonic motivation and behavioural intention to use e-learning. This was proven by the future research conducted by (Ali, Qazi, Puah, & Raza, 2018; Samsudeen & Mohamed, 2019) which showed there was a positive impact from HM on BI to use e-learning relevant to the Sri Lankan context. Hence, the researcher suggests previous research findings and current research findings were the same in the Sri Lankan context without considering the contextual differences and perception differences.

In the last factor, the researcher has found that, a moderate positive correlation between work-life quality and behavioural intention to use e-learning. This was proven by the future research conducted by (Ali, Qazi, Puah, & Raza, 2018; Samsudeen & Mohamed, 2019), which showed there was a positive impact from WLQ on BI to use e-learning relevant to Sri Lankan context. Hence, the researcher suggests previous research findings and current research findings were the same in the Sri Lankan context without considering the contextual differences and perception differences.

Finally, the researcher can conclude that the five hypotheses of the study were accepted with achieving five research objectives. It was clear that performance expectancy, effort expectancy, social influence, hedonic motivation & and work-life quality have a significant impact on behavioural intention to use e-learning for undergraduates at the University of Kelaniya, Sri Lanka.

6. Conclusion and Policy Implication

The purpose of conducting this research is to assess the factors influencing on behavioral intention of e-learning among university undergraduates during Covid 19. The researcher selected undergraduates who are studying in University of Kelaniya, Sri Lanka. The objectives of the study were verified based on the results of Pearson's Correlation analysis and Simple Regression analysis. Having considered the findings, the current study concludes each factor presents a positive correlation with the behavioral intention to use e-learning. The findings of this study will be important theoretically and practically for the parties who are directly involved with the research area. As concluded the results it has identified the various types of factors influencing the behavioral intention of e-learning. Based on the findings of the study, the researcher can provide some implications which will be important for relevant parties in the educational field.

The result of the behavioral intention to use of e-learning can be used for decisions that are relevant to the current educational system, and the result will be important for the strategic decisions related to the educational functions. These research findings will be helpful for identifying the factors influencing on behavioral intention of e-learning. Mainly, the research findings will be helpful for educational institutions and educators (Users of e-learning methods and technologies). Because, in the Sri Lankan educational context, e-learning is a new thing in other countries. Because when considering the pre-COVID-19 situation, Sri Lankan educational authorities mainly considered the physical educational systems & suddenly, with the COVID-19 pandemic, educational institutions had to adopt e-learning technologies. Furthermore, the current research studies will be helpful for educational institutions when deciding the new educational programs and the contents of the new online courses. Because, the current research study has been analyzed user's various kind of perceptions

affected to the behavioral intention to use e-learning. So, educational institutions and authorities can make their decisions based on the student's various perceptions and that will be caused to improve the satisfaction of the e-learners as well.

In the future, this study positively encouraged future researchers to do this type empirical studies for identify the relationship between factors influencing on behavioral intention of e-learning. Present study was conducted based on university undergraduates in university of Kelaniya. It can be suggested that future researchers can conduct their studies by taking samples which represents all the state universities of Sri Lanka or comparing the results of the state universities and the private universities; if the researchers are capable of doing the study effectively it was proposed to choose a sample from state-owned universities as well as private universities. The researcher suggested that future researchers study this area by taking different types of independent variables that affect behavioral intention to use e-learning.

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CHALLENGES CONFRONTED BY WOMEN ENTREPRENEURS: POST-COVID OUTLOOK OF SRI LANKA

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Abstract

This research examines the challenges encountered by female entrepreneurs in post-COVID era Sri Lanka. The pandemic dramatically exacerbated the gender-based issues encountered by female business owners all around the world. The situation in Sri Lanka, with its growing entrepreneurial landscape, adds complications to those challenges. The study included 25 members and used the NVivo program to analyze data. Results revealed a profusion of barriers, which included limited digital proficiency, the disruption of supply chains, and gender prejudice. Adaptability, resilience, and innovative approaches have been fundamental in post-pandemic times. Still, difficulties remain, such as the lack of empowerment and support from external forces. The research suggests specialized interventions, the upgrade of digital literacy, gender-considerate fiscal measures, and mentorship programs as solutions. The conclusions drawn from this research can be beneficial for elevating the level of policy and practice while creating a sustaining environment for female entrepreneurs during Sri Lanka's recovery attempts.

Keywords: Women Entrepreneurs, Post-COVID Challenges, Sri Lanka.

1. Introduction

The worldwide effects of the COVID-19 pandemic have been far-reaching, bringing about new challenges and prospects around various industries (Dharmarajah, 2021). Among the areas that have been heavily impacted are those dealing with women entrepreneurs, who now have to contend with issues that have been exacerbated by the pandemic (Dharmarajah, 2021). The idea of female entrepreneurship in burgeoning economies is multifaceted, usually defined by economic structures, social assumptions, and cultural mores (Adikaram, 2022). The problem of the 'femininity penalty' is deeply entrenched in these businesses, where the female gender identity intersects with their business pursuits, resulting in discrimination and inequality (Adikaram, 2022).

The post-pandemic world has been rife with studies looking into the effects of the pandemic on women-owned businesses (Torres, 2021). Many of these companies are concentrated in fields such as retail and hospitality, which have been hit particularly hard by the economic shocks of COVID-19 (Torres, 2021). Finding capital and adjusting to the altered business landscape have been tough for these women to accomplish (Adikaram, 2022).

Sri Lanka has a vibrant entrepreneurial culture, yet women here still encounter many struggles in their quest to lead businesses. Rajapaksha (2019) and Selvarajan and Thayani (2022) both identify hindrances in this enterprise, such as customary gender roles, insufficient access to finance, and limited backing systems (Rajapaksha, 2019). The pandemic has added another layer of complexity to these issues, with upheavals to the usual supply chains, consumer behavior, and market mechanics (Wang, 2021). Bridging the so-called digital divide in a climate where entrance to technology remains unbalanced might prove particularly tough for women entrepreneurs (Wang, 2021).

This paper aims to contribute to the current body of knowledge by zeroing in on the challenges that women entrepreneurs in Sri Lanka go through in the post-COVID era. By researching the combined effects of gender problems and the pandemic's specific influence, the paper will supply useful analysis that can inform policy and action to support female business operators in their venture to revive and flourish. By means of a thorough examination of available literature and empirical evidence, this research strives to bring to light tactics that could help these women surmount hindrances and fruitfully enhance economic growth and stability in Sri Lanka.

1.1. Research Problem

The part of women in entrepreneurship has been progressively receiving recognition as a key factor for economic development and gender equality (Mustafa, 2021). Nevertheless, despite this acknowledgement, female business owners still face multifarious difficulties that obstruct their prosperity and growth capability (Mustafa, 2021). This research difficulty aims to go into the roadblocks and influences impacting female entrepreneurs in Sri Lanka (Mustafa, 2021). While existing research has given advantageous insights into the difficulties confronted by female entrepreneurs in these territories, there remains a need for an exhaustive comprehension of the particular elements that add to or obstacle their prosperity (Mustafa, 2021).

The broader gendered consequences of the COVID-19 pandemic on the security of women in Nepal and Sri Lanka illuminate the intricacies of female roles and troubles in these conditions (Luna K C, 2022). Nevertheless, a more focused inquiry is necessary to explore the intricate dynamics affecting women's entrepreneurship, particularly post-pandemic (Luna & Whetstone, 2022). Moreover, Selvarajan and Thayani (2022) bring to light the challenges confronted by female entrepreneurs in the Jaffna region of Sri Lanka. However, their exploration does not sufficiently address the changing post-pandemic scene and its effect on women entrepreneurs (Selvarajan, 2022).

Furthermore, it accentuates the job of business improvement services in advancing women entrepreneurship in Sri Lanka (Attygalle, 2014)). However, this examination does not delve into the particular difficulties experienced by female entrepreneurs in the Western Province, which is a zone of monetary importance (Attygalle, 2014)). Likewise, the research by Thilakarathne (2022) centers on achievement factors for women entrepreneurs in the Western Province of Sri Lanka, giving profitable bits of knowledge about their successes (Thilakarathne, 2022). In any case, a complete comprehension of the barricades and challenges that these ladies confront remains essential (Thilakarathne, 2022).

"This research problem focuses on understanding the challenges confronting women entrepreneurs in the post-covid era of Sri Lanka."

2. Literature Review

2.1. Impacts of the COVID-19 Pandemic on Women Entrepreneurs

The COVID-19 pandemic has posed unprecedented dilemmas to worldwide economies, and particularly vulnerable were women entrepreneurs (Mustafa, 2021). Considerable research has highlighted the pandemic's gender-specific repercussions on women-owned businesses. Mustafa (2021) investigated the pandemic's effects on female entrepreneurs in Pakistan, identifying disruptions stemming from lockdowns, supply chain stoppages, and decreased consumer demand. Furthermore, being largely represented in industries such as retail and hospitality, women entrepreneurs were uniquely exposed to the crisis (Mustafa, 2021).

Likewise, Henri, Beharry, and Mashau (2023) systematically investigated the pandemic's repercussions for female entrepreneurs. They illustrated how restrictions of markets, capital, and resources combined with amplified caretaking responsibilities disproportionately affected them, thus causing additional strain and a hindrance to their business's progression (Henri, 2023).

The crisis was not limited to Pakistan; Monnaf and Rahman (2022) explored the socio-economic consequences on women entrepreneurs in the Rangpur City Corporation of Bangladesh. They spotlighted the difficulties encountered by entrepreneurs in the informal sector, such as decreased economic activity, confined access to credit, and interruptions in supply chains (Monnaf, 2022).

Despite this, the pandemic has incited a display of resiliency and flexibility from women entrepreneurs. Numerous took to digital platforms as physical storefronts faced limitations. Notwithstanding, this digitation was not without problems, mostly correlated to limited digital know-how and technology access (Henri, 2023).

2.2. Evolving Landscape of Women's Entrepreneurship in Post-Pandemic Sri Lanka

The transforming portrait of female entrepreneurship in post-COVID Sri Lanka reflects a vibrant exchange of dilemmas, reactions, and openings affected by the unparalleled disturbances generated by the pandemic (Roar, 2021). As the pandemic completely overhauled the global business sector, women entrepreneurs in Sri Lanka were forced to maneuver through unfamiliar territories to guarantee the sustainability of their businesses.

The pandemic's effects on women-owned companies have been manifold, ranging from supply chain stoppages to changes in shopper habits (Torres,

2021). In a country where the digital gap and modern technology access are still unresolved issues (Wang, 2021), female entrepreneurs additionally had to conform to the digital requirements of the post-pandemic age. This adjustment was notably central as digital channels became vital for commerce continuity and consumer communication.

While the pandemic accentuated doubts, it also provoked women entrepreneurs to display their versatility and malleability. The story of female entrepreneurs in the Jaffna locus emphasized the value of tutorship and reinforcement networks in overcoming barriers (Selvarajan, 2022)). Their recipes for negotiating the post-pandemic landscape provide insight into the job of cooperative initiatives and training communities.

Likewise, the Western Province's women executives, who had displayed profitability determinants to the pandemic (Thilakarathne, 2022), likely adjusted these determinants to the varying circumstances. Their adventures furnish acumen into the shifty temperament of these victorious factors and how they contribute to post-pandemic revival.

As Sri Lanka's economy re-energizes in the post-pandemic age, the updating scene of female entrepreneurship has far-reaching consequences. The tactics employed by women executives to conquer tribulations, modify their companies, and make the most of new openings add to economic recuperation and advancement. Gauging their experiences gives important comprehension for decision-makers, bodies, and support organizations to do interventions that create a promoting atmosphere for women entrepreneurs.

2.3. Barriers and Opportunities for Post-Pandemic Recovery

The upcoming renewal period presents a one-of-a-kind atmosphere of both barriers and opportunities for women entrepreneurs in Sri Lanka. Looking at the wider conversations surrounding difficulties and openings in the post-COVID-19 era (WEF, 2020), this section will explore the aspects that constrain female business owners' revival and growth potential and the potential paths for overcoming these issues.

Hinders to Post-Pandemic Recovery: The commotions instigated by the pandemic have magnified pre-existing blocks that impede the evolution of women entrepreneurs. These hindrances include restricted access to financing, deficient backing systems, and public gender maxims (Rajapaksha, 2019). The snags distinguished by Selvarajan and Thayani (2022) additionally emphasize the need for mentorship and aid nets for women entrepreneurs in Sri Lanka. The post-pandemic recovery might confront battles in re-building these webs and

tending to the durable gender predispositions that obstruct women's access to assets and opportunities.

Chances for Post-Pandemic Recovery: The changing landscape also carries forth several openings for women entrepreneurs in Sri Lanka. The digital transformation motivated by the pandemic has cleared roads for digital businesses, e-commerce, and digital promotion (Wang, 2021)). Female business owners can exploit these chances to access a larger audience and tap into novel markets. The alteration into ecological and circular supply chains (Alva Ferrari, 2023) synchronizes with the advancing tendency towards eco-aware customer conduct, providing room for women entrepreneurs to be inventive and add to more responsible business practices. The shifting craft characteristics and the expanding significance of distant and adaptable working preparations also present possibilities for women entrepreneurs to match their business assignments with other engagements (WEF, 2020).

3. Methodology

This research adopted a qualitative approach to thoroughly explore the obstacles encountered by female entrepreneurs in the post-COVID period in Sri Lanka. Interviews were chosen as the data collection approach, affording a platform for immediate interaction with the individuals, allowing for the capture of their stories in a genuine way. Twenty-five female entrepreneurs were deliberately chosen as participants to guarantee diversity in business divisions, sizes, and geographic areas within Sri Lanka. The sampling strategy sought to represent a comprehensive array of the issues confronted by female entrepreneurs. Participants were identified using networking events, sector associations, and online platforms applicable to women entrepreneurs. Semi-structured interviews were done with each individual to aid an extensive evaluation of their ordeals. The interview guide was formulated carefully to encompass a wide range of issues, including the problems experienced during the pandemic, approaches applied for restoration, and variations made to address the changing business climate. The discussions were conducted physically or virtually, depending on participants' choices and operational limitations. Data analysis was performed using thematic analysis, a method suitable for picking out and decoding regularities within qualitative data. NVivo software was employed to facilitate the organization and administration of the broad interview transcripts. The analysis course of action was iterative, necessitating multiple interconnected steps. Themes were then defined and named, giving a lucid and concise description of the designs observed within the data. The analysis incorporated direct quotes from the interview transcripts to authorize the identified themes, raising the dependability of the outcomes. To assure the legitimacy of the research, member checking was done, allowing

participants to assess the summary of their interviews for precision and harmony with their lives. Peer debriefing was also held, engaging colleagues accustomed to qualitative research methodologies to investigate the research approach and results thoroughly.

4. Findings

4.1. Challenges in Post Covid-19

Table 17: Challenges in Post Covid-19

Theme	Description
Empowerment and Progress	Women encountered obstacles to empowerment within their communities, requiring more support and mentorship.
Support Networks	Juggling family responsibilities hindered accessing support networks like women's chambers of commerce.
Cultural Barriers	Cultural norms restricted independent business engagement, with gender-based violence limiting growth.
Access to Finance	Gender bias in financial institutions made financing difficult, compounded by collateral requirements.
Marketing Challenges	Slashed budgets affected PR and marketing services, necessitating convincing businesses to invest under constraints.
Shift in Consumer Preferences	Post-pandemic consumer preferences challenged businesses focused on sustainable or handmade products.
Supply Chain Disruptions	Disrupted supply chains led to production delays and increased costs due to restrictions and lockdowns.
Economic Downturn	The economic downturn affected consumer spending, demanding business strategy adjustments for constrained clients.

Worker Availability	Migrated workers and movement restrictions caused production delays and workforce challenges.
Client Satisfaction	Budget constraints demanded high-quality service with lower costs, testing businesses' ability to satisfy clients.
Digital Transformation	Adapting in-person interactions to virtual methods, like online meetings and digital marketing, posed challenges.
Lack of Access to Material	Restrictions and high prices hindered entrepreneurs from procuring necessary materials.
Global Economic Crisis	Clients' changed spending habits, resulting from the global economic crisis, impacted product and service demand.

Source: Compiled by Author

Women entrepreneurs in Sri Lanka encountered a panoply of challenges in post-Covid-19. These challenges were too often intertwined with community ethics, economic circumstances, and industry-based elements. Challenges included difficulties in growth and development inside communities, hindrances in using assistance networks due to family roles and. These ethnic walls limited independent commercial engagement and predicaments in procuring funding due to gender inequality. Slashed marketing budgets affected public relations and marketing services, while variations in customer tendencies and supply chain interferences added to the complexities. Financial slumps impacted purchaser expenses, demanding businesses' capacity to adjust. The need for revolutionary tactics to manipulate virtual connections and access to supplies further contributed to these multifaceted tribulations.

Women entrepreneurs in Sri Lanka faced significant obstacles in their quest for empowerment within their communities. Many participants expressed for needing more support and mentorship to overcome these hurdles. One participant stated, "In our communities, there is still a prevailing mindset that women should stick to traditional roles. It is breaking free from these norms and pursuing our entrepreneurial dreams is challenging." Whom Several others echoed this sentiment, highlighting the importance of empowering women to challenge societal expectations was a recurring concern, emphasizing the need for programs and initiatives that build self-esteem and provide role models for aspiring entrepreneurs.

Another crucial challenge identified was accessing support networks, such as women's chambers of commerce. Participants pointed out that juggling family responsibilities often hindered their ability to engage with these networks effectively. A participant shared, "I want to tap into the resources and opportunities provided by women's chambers, but it is challenging with my family duties. I often find myself torn between my business and my family." This conflict between family responsibilities and entrepreneurial aspirations created barriers for many women entrepreneurs, limiting their access to essential resources, guidance, and networking opportunities.

Many women entrepreneurs encountered difficulties marketing their businesses due to slashed budgets resulting from the economic impact of the pandemic. A participant noted, "The pandemic forced us to cut down on our marketing expenses, which made it harder to promote our products and services effectively. Convincing businesses to invest in marketing under these constraints became a constant struggle." This constraint hindered their ability to reach a wider audience and grow their enterprises, highlighting the need for innovative and cost-effective marketing strategies tailored to the post-COVID landscape.

The post-pandemic era witnessed a significant shift in consumer preferences, posing challenges for businesses focused on sustainable or handmade products. One participant mentioned, "Consumers started prioritizing safety and convenience over sustainability, which was a blow to our business built around eco-friendly products." This shift required women entrepreneurs to adapt their offerings and marketing strategies to align with the changing consumer mindset, emphasizing the importance of agility and adaptability in the face of evolving market dynamics.

Disrupted supply chains emerged as a critical challenge for women entrepreneurs in Sri Lanka, leading to production delays and increased costs due to COVID-19-related restrictions and lockdowns. A participant shared, "restrictions. Lockdowns and transportation restrictions severely affected our supply chain. We struggled to source raw materials and deliver products on time, which hurt our reputation and profitability." The vulnerability of supply chains highlighted the need for contingency planning and diversification of suppliers to mitigate the impact of future disruptions.

The economic downturn brought about by the pandemic significantly affected consumer spending patterns, which in turn demanded strategic adjustments for businesses, particularly those catering to constrained clients. One participant expressed, "Our clients had tighter budgets post-COVID, which meant we had to reevaluate our pricing strategies and find innovative ways to provide value while keeping costs low." This economic uncertainty posed a formidable

challenge, forcing women entrepreneurs to rethink their business models and adapt to the evolving financial landscape.

The migration of workers and movement restrictions imposed during the pandemic caused severe disruptions in workforce availability, leading to production delays and workforce challenges. A participant shared, "Many of our workers had to leave for their hometowns during lockdowns and getting them back was a logistical nightmare. It affected our production schedules and output." This issue underscored the importance of having flexible workforce strategies to manage the unpredictability of the post-COVID era and ensure business continuity.

The economic downturn and budget constraints in the post-COVID era demanded high-quality service delivery with lower costs, testing businesses' ability to satisfy their clients effectively. A participant emphasized, "Our clients wanted more for less, which was a tough balance. We had to maintain quality while being mindful of cost control." This challenge highlighted the need for creative problem-solving and the development of cost-efficient service delivery models that could meet client expectations and maintain business competitiveness.

The shift from in-person interactions to virtual methods, such as online meetings and digital marketing, presented a significant challenge for women entrepreneurs in Sri Lanka. One participant commented, "Adapting to digital platforms was a steep learning curve. We had to invest time and resources to transition from our traditional in-person business model to the online world." This transition highlighted the importance of digital literacy and the need for support in embracing technology to remain competitive in the post-COVID era.

Many women entrepreneurs' difficulties needed help in procuring necessary materials due to restrictions and high prices. A participant said, "Supply chain disruptions and rising material costs made it challenging to maintain our production levels. Sometimes, we had to compromise on the quality of materials due to budget constraints." Access to essential materials would have helped them meet customer demands and maintain the quality of their products and services.

The changed spending habits of clients resulting from the global economic crisis significantly impacted the demand for products and services offered by women entrepreneurs. One participant noted, "Our clients became more cautious with their spending, which affected our business. We had to pivot and find ways to offer more affordable solutions to meet their needs." This shift in client behavior underscored the importance of adaptability and the need to diversify product or service offerings to cater to evolving market demands.

Post-pandemic funding and financing posed diversified obstacles for entrepreneurs. Uncontrollable inflation, high-interest rates, and gender gaps within the financial industry blocked access to funding and backing. Numerous businessmen and women experienced difficulties in obtaining loans, causing them to turn to options like private financiers and NGOs. They multiplied endeavors and meagre data on assistive resources rendered it tough to acquire essential aid. Economic recession anticipated business shutters, lessened by family financial assistance. Tactics of reinvesting profits, morphing enterprise operations, and sourcing substitute capital were used to remain entrepreneurial. Industriousness shone through alteration, digital mediums, and family reinforcement, making certain businesses endurance against economic problems.

Entrepreneurial challenges deriving from skill and knowledge disparities reflect diverse experiences. Sectors that necessitate specialized capabilities manifested the of need for access to the necessary knowledge, particularly in contexts such as Sri Lanka. Looking for specialist aid became key for filling the gaps in knowledge. Business owners highlighted the need for digital proficiency and proficiency with e-commerce, addressing shortcomings among SMEs and emphasizing the development potential digital platforms provide. The constant study gained importance and encompassed remote practice, trend adoption, and tertiary learning. The job force highlighted a disparity between formal knowledge and job preparedness. Social and cultural obstacles hindered female entrepreneurs, who managed to surmount them with the help of supportive communities and harnessing personal benefits.

5. Discussion

The research findings from thematic analysis shed light on the multifaceted challenges confronting women entrepreneurs in post-COVID Sri Lanka. For women entrepreneurs, the pursuit of empowerment and progress is beset by impediments within their local societies, necessitating additional support and tutelage (Adikaram, 2022). Acquiring access to support groups, like women's chambers of commerce, is complicated by domestic duties (Selvarajan et al., 2022). The predominance of traditional values throttles the independent business activity women can participate in, and gender-oriented violence additionally hinders the probable growth of such businesses (Henri, 2023). Furthermore, the gender inequity in financial institutions, in union with exacting collateral conditions, makes it hard for female entrepreneurs to secure backing backing (Rajapaksha, 2019). The pandemic has, by and large decreased promotional budgets, which has adversely affected the accessibility of PR and marketing amenities for women entrepreneurs (Roar, 2021). Moreover, the transition consumer preferences towards formulations that are eco-friendly or

crafted by hand has created additional challenges (Roar, 2021). The interruption of the conventional supply chain induced a financial crash, and the differentiations caused by the wandering of labors, have extended the duration of production and reared expenditure (Luna & C, 2022). The obligatory customer pleasure, enforced by budget constraints, puts pressure on businesses to fabricate cost-effective quality services (Dharmarajah, 2021). Some women entrepreneurs are challenged to adapt to digital alteration, e.g., virtual summits and electronic advertisements (Wang, 2021). Moreover, the non-availability of components due to limitations and inflated prices impedes their processes (Thilakarathne, 2022). The global economic setback has engendered a movement of spending practices in consumers, which has in turn influenced the demand for the products and services of women entrepreneurs (WEF, 2020).

6. Conclusion

To conclude, this research illuminates the manifold predicaments by female entrepreneurs in Sri Lanka after and during the Covid-19 pandemic. Post-pandemic challenges included impediments with digital marketing, technology incorporation, supply chain disruptions, factory closures, and deficient access to finance, gender disparities, difficulty reconciling work and life, and a scarcity of training openings. These difficulties underscore the necessity of comprehensive systems of assistance and policy amendments to enhance women's participation and prosperity in entrepreneurship. The impact of the pandemic moreover amplified the strength and flexibility of women entrepreneurs in light of adversity. Companies begin during the pandemic evinced agility by utilizing online platforms. Strength, flexibility, and original tactics emerged as essential components for steering the pandemic-related issues. Suggestions for legislator's bolster associations and stakeholders incorporate objective innovations to tackle particular difficulties. Bolstering digital literacy programs, facilitating access to finance through gender-sensitive regulations, and establishing comprehensive records of aid and support can assist female entrepreneurs in overcoming preexisting and pandemic-prompted restrainers. Future research should examine the long-term effects of the pandemic on women-owned companies, evaluating their recuperation tactics and perpetual progression. Investigating the efficacy of particular interventions and policy amendments in alleviating gender disparities and social roadblocks is critical. Additionally, digging into the responsibility of guidance, networks, and family backing in female entrepreneurs' accomplishments can grant beneficial understandings in forming an encouraging environment. Women entrepreneurs in Sri Lanka showed startling resilience and adaptability while confronting diverse crises. Addressing these troubles necessitates collaborative endeavors from various stakeholders, encouraging inclusive procedures, reinforcing digital abilities, and providing specific support to foster their engagement and victory

in the business realm. The learning drawn from these clinches and the tactics employed by women entrepreneurs are advantageous insights for constructing a more decent and supportive entrepreneurial milieu in Sri Lanka.

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UNVEILING THE DYNAMIC NEXUS BETWEEN ROLE OF LEADER AND CREATING ORGANIZATION CULTURE FOR SOCIALIZING TO EFFECTIVE IMPLEMENTATION OF KNOWLEDGE MANAGEMENT IN D-SIBS IN SRI LANKA

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Abstract

Navigating the helm of an organization demands a formidable prowess, made all the more arduous when tasked with cultivating an organizational culture conducive to knowledge sharing. In the current landscape, where enterprises pivot on the axis of knowledge, the onus falls squarely on leaders to sculpt a fitting cultural milieu that propels the tenets of knowledge management. This study endeavors to elucidate the pivotal role assumed by leaders in orchestrating a socialized organizational culture, thereby amplifying the efficacy of knowledge management implementation in Domestic Systematically Important Banks (D-SIBs) in Sri Lanka. Through an epistemological lens rooted in positivism philosophy, this study employed a deductive approach to investigate its hypotheses. A sample of 377 bank executives with more than two years of experience was thoughtfully selected using judgmental sampling from a population of 26,682 bank employees. The sample was meticulously chosen through the human resources department of each bank. Data analysis was conducted using Pearson correlation and chi-square testing. The findings of this comprehensive study have unveiled a consequential impact of leadership practices on the cultivation of a socialized culture, thereby significantly augmenting the successful implementation of knowledge management endeavors. Notably, the discerned leadership facets contributing to this dynamic include the propensities to 1) foster encouragement, 2) culture of freedom, 3) build trust, 4) establish openness and 5) share work-related story insights. It is recommended bank managers, in their custodial roles, should meticulously ascertain that employees are endowed with the liberty to articulate their ideas seamlessly across a spectrum of platforms, encompassing meetings, workshops, inductions, and training sessions.

Keywords: Knowledge Management, Leadership Culture, Socialization.

1. Introduction

In the contemporary landscape of organizational dynamics, the interplay between leadership and organizational culture has garnered substantial attention for its profound impact on various facets of operational efficiency and strategic effectiveness. Particularly within knowledge-driven enterprises, the strategic management of knowledge assets and their efficient dissemination across the organizational spectrum have emerged as critical determinants of sustained competitiveness and innovation. At the core of this intricate web lies the pivotal role of leaders in shaping not only the organizational culture but also the pathways for knowledge sharing and management. This study explores the intricate interrelation between leadership, organizational culture, and effective knowledge management practices, with a specific focus on the socializing mechanisms that bridge these dimensions.

Central to this investigation is the underlying assumption that a carefully cultivated organizational culture, one that encourages openness, collaboration, and collective pursuit of knowledge, can significantly facilitate the processes of knowledge sharing and management. Key to instilling such a culture is the role of leaders who, through their actions, behaviors, and chosen leadership styles, exert a profound influence on the cultural norms and values within the organization. Their guidance serves to shape the way in which knowledge is perceived, valued and ultimately shared among employees.

The overarching aim of this study is to uncover the multifaceted relationship between leadership's influence in crafting an organization's cultural fabric and its subsequent impact on the effective implementation of knowledge management initiatives. By delving into this dynamic nexus, this research sheds light on the specific mechanisms through which leaders shape a culture conducive to knowledge sharing and how such a culture, in turn, fuels the success of knowledge management endeavors. Ultimately, the insights gleaned from this exploration stand to enrich both theoretical understanding and practical strategies within the realms of leadership, organizational culture, and knowledge management, fostering a deeper comprehension of their intertwined roles in the modern organizational landscape. The research has been conducted on the Domestic Systematically important Banks (D-SIB) in Sri Lanka.

2. Literature Review

2.1 Knowledge Management

The concept of knowledge management (KM) takes on a refined contour, as illuminated by Dalkir (2011), encapsulating a systematic and strategic approach meticulously aligning organizational architecture, human resources, and operational methodologies. This orchestration serves as a catalyst for the cultivation of innovation and the judicious reuse of resources. Within this context, KM operates as a structured procedural continuum, whereby organizations deftly capture, structure, share, and analyze knowledge, culminating in the seamless provisioning of relevant information for employees to execute their job responsibilities with agility, as underscored by Amsler's insights (2021). The KM paradigm embraces a spectrum of definitions that reflect divergent perspectives and approaches. In this regard, Sayyadi's exploration (2021) amplifies the discourse, positing that KM represents a dual alignment, meticulously intertwining information technology with human assets. This lens accentuates an anthropocentric vantage point in KM, where the human element is underscored, effectively transcending a technocratic orientation.

2.2 Leadership culture

A leader aspires to guide their followers in achieving a task, it becomes essential to distinctly outline the constituents of their roles and articulate the anticipated outcomes (Schermerhorn, 2001). Consequently, communication emerges as a critical constituent in this process. Leaders assume a significant responsibility in enhancing communication by engaging in active listening, elucidating concepts, and effecting cultural and structure alterations. Additionally, as a mechanism to drive individuals to action, leaders must foster motivation and elucidate the personal gains therein. Most individuals engage in work endeavors to gratify their necessities (Ribiere & Sitar, 2003).

2.3 Socialization and Knowledge Management

The sharing of knowledge within development teams does not transpire automatically. Effective supplier integration necessitates processes that enable and facilitate knowledge transfer across functional and organizational boundaries. Socialization mechanisms are acknowledged as a primary approach for facilitating the seamless movement of knowledge among firms (Chung et al, 2000), allowing each partner to gain insights into the other's culture and adapt their conduct accordingly, thus laying the groundwork for successful outcomes. Mechanisms like team meetings, cross-functional teams, and collaborative workshops establish connections between individuals from both entities (Lawson, 2009). The resulting intensive interaction pattern cultivates a network of interdependent social exchanges, fostering heightened mutual trust and

respect within the development teams. These social interactions promote the exchange of information within the inter-organizational team, characterized by greater frequency, informality, higher quality, and an earlier occurrence in the development process (O'Donnell, 2000).

2.4 Leaders Encouragement in organization culture

The research outcomes reported by Ovbagbedia and Ochieng (2015), underscore that within Nigerian heavy engineering teams, the transfer of knowledge encounters certain barriers, notably encompassing factors such as: 1) individual vested interests, 2) self-doubt, 3) excessive self-assurance, 4) instances of bias, 5) absence of trust, and 6) the stance taken by senior management. In parallel, the study conducted by Rahman et al. (2018), substantiates the concept of leadership proficiency and its substantial influence on knowledge dissemination. This assertion finds robust support within the study's findings, wherein the discernible impact of leadership on knowledge transmission is deemed notable. Furthermore, it emerges from the research that the effective facilitation of knowledge transfer among employees hinges on an organizational milieu that actively fosters a sense of collectivity.

This collaborative disposition, wherein organizational constituents interact and cooperate towards shared objectives, forms the conduit facilitating informational exchange. This premise is echoed in the qualitative inquiry by Memon et al. (2020), which underscores the importance of engendering an environment that prompts personnel to share knowledge through interpersonally driven ideation. The study strongly suggests the cultivation of adept leadership that engenders a conducive cultural milieu that stimulates the inclination to partake in knowledge exchange.

Moreover, the insights provided by Ng (2022), illuminate the specific categories of organizational cultures that cultivate a proclivity towards knowledge sharing. Delving deeper, the study reveals that the relationship between organizational culture and the propensity to engage in knowledge sharing is influenced, albeit partially, by affective coworker trust and organizational commitment to adhocracy, clan, and market cultures. Conversely, these factors entirely mediated this relationship within the context of hierarchy culture. Building on this cumulative knowledge, both secondary research findings and primary research outcomes converge on the fundamental necessity of leader-driven encouragement within the knowledge management domain.

2.5 Role of Leader and Knowledge Management

According to Al-Hashimi & Hussain (2017), Creating a shared vision for knowledge management and communicating its importance to employees the leader's involvement in knowledge management is essential whereas Carmeli & Crossan (2005), identified that the leader is required to prove the resources and

support necessary for employees to engage in knowledge sharing and learning. Leaders must be an example to his/her employees. That is further emphasized in the research of Debowski (2006), where leader's leader may be involved in knowledge management in the organization through role modeling knowledge sharing and learning behaviors. Employee engagement and employee interest may create motivation for knowledge sharing in an organization, and this was further confirmed by Lin & McDonough (2011), that leaders might reward and recognize employees for sharing and using knowledge. According to the findings of Raja (2019), it was noted that leaders must create a culture of trust and openness where employees feel comfortable sharing their knowledge and ideas.

2.6 Leaders' involvement in fostering an organization culture with freedom.

The organizational framework serves as a catalyst for knowledge exchange and decision-making, fostering an environment that grants individuals within the organization a degree of autonomy. This assertion is underscored by the empirical insights presented by Syed-Ikhsan and Rowland (2004). Based on Berge and Jewel's (2005), research findings corroborate this perspective, highlighting the inherent link between user empowerment and the cultivation of a risk-aware culture. The attainment of user empowerment is contingent upon endowing employees with unfettered agencies to make decisions that facilitate the seamless sharing of knowledge. Similar observations were elucidated by Seow-Wei and Hakim (2006), who discerned that an organizational structure characterized by employee empowerment in decision-making cultivates an environment conducive to information dissemination, thereby fostering learning, creativity, and innovation.

Moreover, Seow-Wei and Hakim (2006) posit that this phenomenon extends to teamwork, adaptability, and autonomy, all of which collectively contribute to enhancing creative thinking and generating novel ideas. The degree of empowerment is intricately linked to employees' latitude to influence decisions and proffer solutions to challenges. This is predicated on the premise that the level of autonomy afforded to employees in their roles influences their willingness to engage in learning and knowledge-sharing endeavors. The cumulative findings assert the imperative for leaders to cultivate a culture of autonomy, which, in turn, serves as a propellant for the efficacy of knowledge management within banking organizations.

2.7 Leaders role in building socializing culture through building trust

A multitude of qualitative and quantitative researchers in previous studies has recurrently underscored the notion of trust as an essential component of organizational culture. Scholars such as Mason and Pauleen (2003), Rzdca

(2017), Islam (2011), Mueller (2012), Japri et al. (2014), Pushpamali (2015), Jain et al. (2015), Cavaliere and Lombardi (2015), Muhammad et al. (2019), Cerchione et al. (2023), Rahman (2018), Gan et al. (2006), Zheng (2009), Jacks et al. (2012), Qamari (2015), Seyedyousefi et al. (2016), Saifi (2015), Figurska (2012), and Sawan et al. (2021) have collectively identified trust as a pivotal factor within the realm of organizational culture. Cultivating trust within employee interactions is acknowledged as a complex endeavor, often necessitating adept leadership, as consistently emphasized by numerous scholars in their research findings. Further, Mayer and Davis (1999), offer insights aligned with the imperative of building trust within leadership dynamics. Their research findings highlight that leader must not only make assurances regarding the appropriate handling of challenges but also consider the systemic and contextual facets of incidents to earn the trust of their team members. Furthermore, the researchers outline that trust comprises three fundamental dimensions: integrity, ability, and benevolence.

Elaborating on the realm of team building, Roodbari et. al (2016), elucidates that the cultivation of trust emerges as a prominent learning outcome within various team-building endeavors, whether conducted in indoor, outdoor, or outbound settings. Their research emphasizes leaders' pivotal role in fostering trust among team members, highlighting trust's centrality in cohesive team development.

Furthermore, Rusu (2021), research findings underscore the correlation between leaders' trust in their subordinates and the subordinates' capacity to excel in their roles. The intrinsic linkage between leadership-led trust and subordinate performance underscores trusts in motivating and enabling employees to demonstrate their competencies.

The pivotal role of trust in employee interactions, team dynamics, and individual performance underscores the significance of adept leadership in fostering and nurturing this critical element of organizational culture.

2.8 Leaders' involvement in fostering openness in organization culture

The cultivation of an open organizational culture by leaders engenders benefits for both employees and the organization itself, as evidenced by the findings of George and Zhou (2001). An environment characterized by high levels of openness serves as a conduit through which employees gain exposure to diverse emotions, thoughts, perspectives, and ideas. Consequently, individuals are inclined towards embracing novel concepts, leveraging their experiential breadth, and devising innovative approaches to tackling challenges and assignments. The facets of an openness culture are multifaceted, as discerned by Darviri and Woods (2006), who categorize these attributes into dimensions

such as creativity, cultural awareness, experiential seeking, and curiosity. This comprehensive configuration further propels the exchange of ideas among employees within the organizational framework.

Notably, the task of fostering an openness culture is not solely relegated to leadership intervention. Moreover, Elanain (2010), elucidates that the presence and influence of an openness culture are contingent upon various other factors. The propensity to embrace new experiences is subject to fluctuation contingent on organizational structure and culture, thereby delineating a multi-dimensional impact on the manifestation of an openness culture.

Moreover, the research insights posited by Tews (2011), substantiate a significant positive correlation between openness to experiences and the orientation towards learning. This confluence reinforces the underlying premise that an openness culture is pivotal in knowledge management. Consequently, it is underscored that leadership is central and indispensable in cultivating an environment that espouses openness within organizations.

2.9 Leaders involvement in creating a culture to share work-related stories

Narratives have been discerned as a fundamental component within the realm of organizational culture (OC), as evidenced by their inclusion in established OC frameworks such as the Cultural Web, pioneered by Gerry Johnson and Kevan Scholes in 1992. Secondary literature also confirms the significance of storytelling in the context of knowledge sharing. As articulated by Soule (2001), storytelling has historically served as a conduit for transmitting culture and disseminating knowledge across generations. However, it's noteworthy that in contemporary organizational paradigms, a pronounced predilection exists for tangible forms of knowledge—those amenable to classification, categorization, quantification, and analysis. Despite this, there has been a perceptible shift in organizational awareness, with leaders and entities recognizing the value of narrative and anecdotal data in the form of stories.

This resurgence in interest can be attributed to the heightened understanding of the centrality of knowledge within organizations. The recognition that certain dimensions of knowledge resist complete abstraction into categorical or analytical constructs has fostered a renewed appreciation for narrative-driven communication. Organizations are increasingly seeking avenues of communication that amalgamate information rather than solely subjecting it to evaluation. Storytelling emerges as a distinct mode of communication in this context. Dalkir (2005) contextualizes storytelling within the realm of knowledge management (KM) as a potent technique aimed at persuasively conveying knowledge to listeners. Additionally, storytelling is a comprehensive narrative

detailing managerial decisions, inter-worker interactions, and other informal intra-organizational occurrences.

The articles by Nazim and Mukherjee (2016), further underscore the efficacy of storytelling in sharing knowledge, particularly of the tacit and experiential variety. Within organizational ecosystems, employees adeptly disseminate knowledge, competencies, and experiences through the medium of storytelling. The same scholars emphasize that the potency of storytelling extends to enhancing the potential for information sharing within workplace environments, thereby augmenting knowledge exchange dynamics.

3. Methodology

This research study was framed within the epistemological standpoint of positivism, which emphasizes the objective observation of phenomena. A deductive approach was employed, where research starts with established theories and tests hypotheses. The research focused specifically on systematically important bank employees within the domestic context. The research sample was meticulously constructed, consisting of 377 participants who met strict criteria: the bank employees with more than two years of experience and held executive-level positions. This group was carefully selected to ensure their experience and insights were relevant to the research objectives. The selection process involved collaborating with the human resources departments of each bank to obtain a comprehensive list of eligible participants. This list was used as the sampling frame to draw the final research sample. Data collection was carried out using a structured questionnaire, which facilitated the systematic gathering of quantitative data. Two statistical methods were employed to analyze the data and test the research hypotheses: Pearson correlation and chi-square testing. Pearson correlation was used to assess the strength and direction of relationships between variables, while chi-square testing was applied to examine associations and dependencies between categorical variables. These methods were selected based on their appropriateness for the research questions and the data type.

4. Data Analysis and Results

The data was collected once in the study, and quantitative data analysis was conducted based on descriptive statistical analysis using SPSS 6.0. The survey questionnaire consisted of 21 questions on a Likert scale basis under freedom, encouragement, trust, openness and work-related stories categories. The reliability test conducted for the research questionnaire depicted Cronbach's alpha is 0.875, which indicates a high level of internal consistency in the sample.
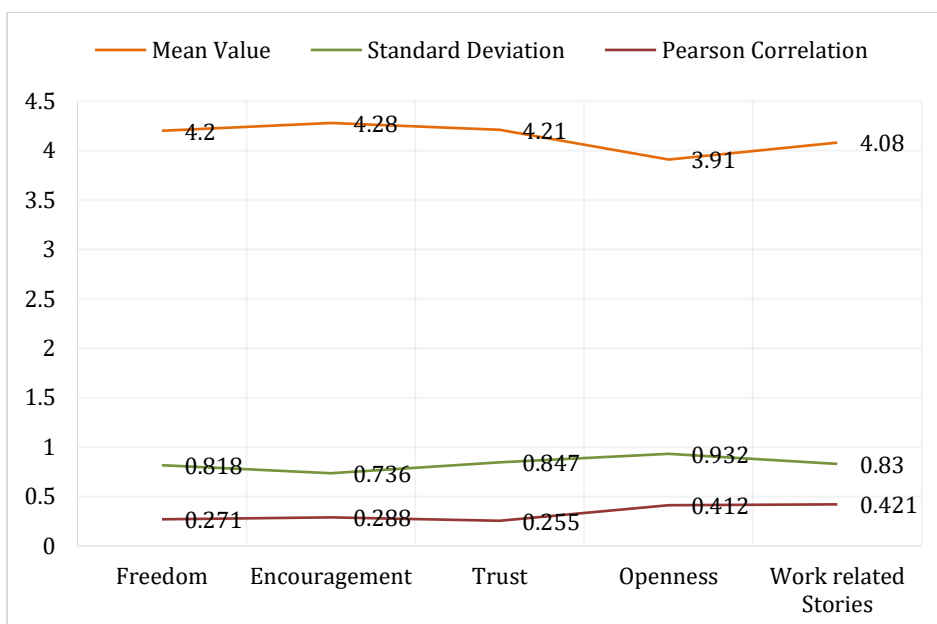
Figure1: Descriptive Statistical Analysis

For the Questions, participants have responded from Strongly Disagree to Agree Strongly. The mean values depicted for freedom, encouragement, trust, openness and work-related stories, respectively 4.20, 4.28, 4.21, 3.91 and 4.08. That emphasized that an average number of respondents tend to select the Agree answer whereas the standard deviation of 0.818, 0.736, 0.847, 0.932 and 0.830 depicted also show considerable deviation from the mean value.

Correlation analysis generated for freedom, encouragement, trust, openness and work-related stories, respectively the Pearson correlation values 0.271, 0.288, 0.255, 0.412, and 0.421, which confirms that leader creating freedom, encouragement, and trust in OC for KM has low positive relationship whereas leader supporting, openness and sharing work-related stories in the organization culture has a moderate positive relationship in implementing knowledge management in D-SIBs.

As per the test output, the Pearson Chi-square value (p) is 0.000 for rounded three decimal points. Since the p-value is less than the chosen significance level $\alpha = 0.05$ for freedom, encouragement, trust, openness and work-related stories, Null Hypothesis (H_01, H_02, H_03, H_04, and H_05) was rejected, and concluded that there is a relationship between of leader and creating organization culture for socializing has an influence on successful implementation of knowledge management in D-SIBs.

5. Discussion of the Findings

The leader and creation organization culture for socializing has an influence on the successful implementation of knowledge management in D-SIBs, research hypothesis was tested through 1) Freedom, 2) Encouragement, 3) Trust,4) Openness, 5) Work-related stories independent variable dimensions.

Based on the inferential statistical findings, Pearson correlation values have indicated a low positive association between OC constructs of 1) Freedom, 2) Encouragement, 3) Trust and socialization in implementing the KM practices in D-SIBs, whereas a moderate positive association indicated between 4) Openness, 5) Work related stories and socialization in implementing the KM practices in D-SIBs.

A Leader creating socialization organization culture through providing freedom to employees to share their knowledge is also recognized as a positive factor by Syed-Ikhsan & Rowland (2004); Berge and Jewel (2005); and Seow-Wei & Hakim (2006) in their research findings. This research finding also depicted that freedom in the OC has more opportunities for socialization, making it easier for KM, which is further depicted through the acceptance of an alternative hypothesis. If employees are provided a friendly culture that is fear-free, then employees would become further motivated to be involved in KM, and this is where the leader needs to consider the best way to create freedom in the banking culture for banking employees to share ideas and knowledge among coworkers and also with the top-level employees. It is generally acknowledged that giving employees more responsibility results in improved quality. The findings affirm that leaders need to create a culture with freedom to amplify the KM in the banking organizations.

It is the leaders' responsibility to create a good culture where employees get encouraged to share their knowledge, which was proven through the primary research findings and similar findings presented by Ovbagbedia & Ochieng (2015); Rahman et al. (2018); Memon et. al (2020); and Ng (2022), in their research findings. The aforementioned secondary research and the primary research findings indicate that a leader's encouragement is essential in KM.

If the leaders supported the employees to create trust among other employees and open culture, then further, employees would focus on sharing the knowledge among other staff members, which confirmed in the primary research by accepting the alternative hypothesis and further confirmed by secondary research findings of (Mason & Pauleen, 2003); (Rzdca, 2017); (Islam, 2011); (Mueller, 2012); (Japri et.al, 2014); (Pushpamali, 2015); (Jain et al., 2015); (Cavaliere & Lombardi, 2015); (Muhammad et al., 2019); (Cerchione et.al, 2023); (Rahman, 2018); (Gan et. al, 2006); (Zheng, 2009); (Jacks et. al, 2012); (Qamari, 2015); (Seyedyousefi et. al, 2016); (Saifi, 2015); (Figurska,

2012); (Sawan et.al., 2021); Hammond (2008); and Rusu (2021). It is evident that the leader must create trust in the culture, leading to successful KM in the banking organizations.

It is not only to create a better culture of knowledge sharing, but the leader's job role is there, allowing employees to meet them whenever they want and share work-related stories with the employees so they can easily gain knowledge. The primary research findings have depicted that the aforementioned fact was correct, and the same is affirmed by George and Zhou (2001); Darviri and Woods (2006); Elanain (2010) and Tews (2011) in their research findings. s

The storytelling as potential for information sharing in the workplace can be increased through storytelling. It offers advantages to few other KM technologies or conventional organizational communication methods. It was noted in the primary research findings that there is a relationship between leader creating a culture support employee to socialize and share work-related stories and that promotes KM, which also confirmed in the research findings of Dalkir (2005) and Nazim and Mukherjee (2016).

6. Conclusion and Policy Implications

The participation of leaders and the adoption of specific leadership styles within the organizational culture wield a substantial influence over establishing a socialized cultural environment that encourages employees to exchange knowledge amongst themselves. Knowledge sharing and the practice of knowledge management are of paramount importance, particularly within the context of banking sector organizations, given their role in delivering services to customers.

D-SIB employees should be granted autonomy over their respective tasks, demonstrating trust and encouragement for them to take full responsibility for making decisions. Additionally, the research highlights the importance of leaders supporting employees and creating an environment where they feel comfortable sharing their ideas. One of the most challenging aspects for new recruits is understanding their role and place within the organization. Informal interactions with other employees in the D-SIB can help uncover skills, interests, and other defining characteristics that may have otherwise been overlooked, ensuring that employees feel valued. Through this process, new hires can gradually develop their work identity and better understand their unique position within the banks (Ford, 2022).

D-SIB leaders who directly engage with operational-level employees typically include Heads of Departments, Managers, and Branch Managers. The involvement of leaders is crucial in creating a socialization culture, as indicated by the primary research findings of this study. Not all D-SIB leaders interact extensively with their employees, which needs improvement across all D-SIBs.

However, it was emphasized that leaders should share work-related stories with staff during lunch breaks and free time. It was noted that this interaction happens more frequently between managers and employees, suggesting that a closer connection can be fostered through organizing social activities.

The research findings encourage organizations, especially those in the banking sector, to invest in leadership development programs emphasizing the significance of a leadership style aligned with fostering knowledge sharing. Additionally, these insights suggest the need for the implementation of knowledge management systems and practices that facilitate seamless knowledge dissemination among employees.

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POTENTIAL BARRIERS AND CHALLENGES FOR CYCLING AMONG DAILY COMMUTERS IN COLOMBO DISTRICT: A WAY FORWARD FOR THE TRANSPORT SYSTEM IN SRI LANKA

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Abstract

Active transport encompasses human-powered modes of travel, such as walking, cycling, skating, and manual wheelchairs. It offers several advantages for users, society, and a country's economy. Notably, it is a low-cost, health-improving mode of transportation that aids in reducing traffic congestion and environmental pollution. However, in Sri Lanka, active transportation hasn't been widely recognized as a primary mode for daily commuters. This study focuses on identifying potential barriers and challenges, specifically within the Colombo district. The research is limited to cycling due to data availability. Employing a quantitative approach, this cross-sectional study distributed a questionnaire among daily commuters traveling within Colombo for work, education, and other purposes. The questionnaire was distributed both physically and via online platforms, using convenience sampling with a sample size of 389. The data collected concerning respondents' perceptions of potential barriers and challenges were analyzed using the IBM SPSS statistical tool. The study identified four potential barriers: infrastructure, safety, environmental concerns, and public perception about cycling. Additionally, three challenges were recognized: costs associated with cycles, air pollution, and educational aspects. Moreover, the research revealed negative correlations between the usage of active transportation in Sri Lanka and the aforementioned barriers and challenges. The study concludes by proposing recommendations to promote active transportation, particularly cycling, in Sri Lanka in the future.

Keywords: Active transportation, cycling, potential barriers, potential challenges.

1. Introduction

Active transportation, encompassing walking, cycling, and various non-motorized modes such as rickshaws, skateboards, and wheelchairs, serves both transportation and recreational purposes. (VTPI, 2010; gTKP, 2010). Diverse modes cater to different needs and communities, contributing to more efficient and equitable transportation networks. Within this system, walking and cycling stand out as the primary active transportation choices, with walking being an ancient mode of travel while cycling emerged roughly two centuries ago. Walking, the oldest form, is as old as the species, while cycling, the second, is only about 200 years old.

In most of the many large cities   in South American and European regions, including Amsterdam, Santiago, Bolgoto and Copenhagen, cycling is known as one of the most popular   ways to get to activities related   to work. (Heywood, 2020).

A viable solution for developing clean urban transportation frequently includes promoting active transport for relatively short distances up to 7kms which includes a majority of trips in urban cities, active transport is a very attractive mode of transportation.

Researchers have observed a clear decline in active transportation   from the end of the 20th century in most countries such as the USA, UK, European countries, etc. In the USA according to the National Transportation survey data which provides longitude data has shown that walking has fallen from approximately 9.3% in 1969 to only 8.6% of all recorded trips in 2001, although changes in survey methods suggest the earlier figure may be artificially low (Florida Department of Transportation and Center for Urban Transportation Research, 2006:4).

Especially in Sri Lanka cycling is not identified as a mode of transportation for commuters. Most of the   middle-class families own their vehicles so they can move from one place to another easily with the availability of fuel in the country. Sri Lanka's transportation system depends heavily on automobiles. This indicates that access to other modes of transportation is generally limited and that land use patterns and transportation infrastructure primarily promote automobiles. Traffic congestion has become a huge problem in Sri Lanka. Mainly highly populated cities like Colombo, Kandy, and Gampaha are suffering from traffic congestion. In Colombo and other major cities, traffic congestion occurs during certain times of the day which are called speak periods or rush hours. The balance between the demand and the supply of road space is identified as the main two clear parameters which impact the creation of traffic congestion. (Amal   , 2004).

1.1 Problem statement

Sri Lanka as a country used cycling as a mode of transportation for a very long time to fulfill their day-to-day life activities. Many benefits can be achieved by using cycling But with the development of motorization and urbanization, daily commuters have almost stopped using cycling, especially in urban areas. There could be some reasons for that.

As per Damunupola A.K.A (2021) challenges for cycling in Sri Lanka are categorized under 3 categories   Safety and Security, Infrastructure facilities, and Product and   Process-related issues. Fernando, D. (2022) has stated that the barriers are included poor city planning in urban areas and excessive regulations in the country, as well as many   people who are going to work, mostly   living away from their offices, so they could not   able to use active transportation to travel to their offices and they should have   an easy mode of transportation to report to work and also to   fulfil their other personal needs.

It indicates that there's an issue for Cycling. Those issues can be either barriers or challenges which   limit commuters from choosing Cycling as their mode of transport.

1.2 Research Questions

Primary research question,

What are the barriers   to cycling among daily commuters in Sri Lanka?

    Secondary Question

What are the challenges for cycling among daily commuters in Sri Lanka?

What is the relationship of barriers and challenges with the usage of cycling in Sri Lanka?

1.3 Research Objectives

Primary Objectives

Identify the barriers   to cycling among daily commuters in Sri Lanka.

Secondary Objectives

Identify the challenges for cycling among daily commuters in Sri Lanka.

Identify the relationship of barriers and challenges with the usage of cycling.

This study is conducted in the scope of overviewing the real challenges that limit active transportation specially cycling from establishing   as a transportation mode in Sri Lanka. Other than that, this study overviews the infrastructure, social, cultural   , transport network and policy barriers towards active transportation in Sri   Lanka as a developing country. This study provides

a lot of accurate data and information for daily commuters, sellers and the government about issues in the current transport network in Sri Lanka to adapt to cycling.

1.4 Limitations of the Study

The study is only based in the Colombo District and the study area is limited to certain areas in Colombo District in order to carry out the study. The chosen geographical area to conduct the study is one of the main corridors to enter the Colombo Metropolitan area, the Galle Road corridor.

Due to the unavailability of enough resources, the study mainly focused on Cycling which is one of the two main modes of Active Transportation. Respondents who choose to conduct the study are people about 15 years old as they normally travel on their own, but it is better if the research also can focus on minors. Also, the research was mainly based on primary data where data was gathered by distributing a questionnaire among the 398 number sample population.

2. Literature Review

A trip involves moving from one place to another using various modes of transportation (Damsara, 2021). The selection of transportation methods plays a crucial role in transport planning. In the latter half of the 20th century and the early 21st century, there was a clear emphasis on prioritizing motorized transportation, particularly cars and two-wheelers, in both developed and developing countries.

R.A.M. Maduwanthi (2016) notes that 37.6% of the modal share in the Colombo metropolitan area is held by private vehicles, including cars, motorbikes, three-wheelers, and other modes. However, only 9.5% of the modal share consists of active transportation modes like walking and cycling.

Active transportation, particularly biking and walking, offers numerous advantages for individuals and communities. It leads to improved physical well-being due to increased physical activity (Rabel, 2011). Furthermore, there are various economic benefits associated with automobile use, such as reduced operating costs (fuel expenses), decreased roadway congestion, cost savings in parking, and improved road safety through fewer accidents resulting from reduced vehicle traffic (Gordon,2018).

2.1 Difference between barriers and Challenges

External variables are barriers because they slow down progress or keep someone from accomplishing their objectives. They can be physical

impediments, financial constraints, social or cultural standards, or legal or regulatory limitations. The person or organization affected by a barrier regards it as external and out of their control. (Baker., LeTendre, (2005)).

Contrarily, obstacles encountered when pursuing a goal are referred to as challenges since, they may be overcome through work, innovation, or problem-solving. Problems are frequently seen as requiring initiative or action from the person or organization facing those (Ellis et al., (2018).

2.2 Barriers and Challenges for Cycling

Infrastructure Barriers:

Transportation options are shaped by urban design and planning, influenced by place-shaping land use practices and policies (Heath &G.W 2006). These practices and regulations modify the look and feel of places, impacting people's perceptions. Urban planning affects housing density, compactness, street interconnectivity, and the mix of land uses (Badland et al.,2008). Poor urban design can raise safety concerns, acting as a deterrent to using active transportation (Foster et al.,2014). The absence of bike lanes forces cyclists to share the road with cars, increasing safety risks (Tin et al., 2010). Research found that 88% of participants stated that bike lanes would significantly increase their likelihood of cycling.

Public Perception as a Barrier:

A person's need for acceptance from family and social groups increases with the size of their social network. The decision to use a bicycle for transportation may rely on these groups' perceptions. The belief that cycling is common and socially accepted is linked to increased bicycle use (Heinen et al.,2010). Research shows the importance of subjective norms in the decision to commute by bicycle (Bruijn et al, 2009; de Geus, 2008). Individuals are more likely to cycle if their coworkers do, and financial incentives provided by employers can also encourage bicycle use (Dill, 2007; Geus et al., 2008).

Environmental Factors as a Barrier:

Vehicle traffic causing delays, inconvenience, and limiting access to active modes is known as the "Barrier Effect" or "severance." This effect is linked to automobile traffic, while severance focuses on the impacts of new or wider highways. The design of roadways tends to facilitate car movement, impeding pedestrians who want to cross the street. This environment reduces pedestrian numbers, discouraging walking and promoting reliance on motorized transport (Levinson, 2021).

Safety as a barrier

The degree to which people value safety when using various types of transportation is known as safety priority (Moen & Rundmo, 2004). The decision to emphasize safety must be made concerning factors like the safest route, the use of safety gear, and cautious cycling conduct. The person must also think that their actions will lower the risk to which they are exposed. There hasn't been much research on bikers' risk tolerance and emphasis on safety. (Simsekoglu et al., 2015). Further, the individual has to believe that their behaviour will reduce the risk to which they are exposed. The number of studies on risk tolerance and safety priority among cyclists is to date limited (Simsekogl et al., 2015).

Air Pollution as a Challenge
In both high-income and low-income countries, exposure to motor vehicle traffic is a significant source of air pollution. Particulate matter, carbon monoxide, and nitrogen oxide are among the pollutants to which residents living 300 meters from busy roadways are more exposed. Because the transport industry is responsible for 25% of the world's carbon dioxide emissions, the majority of which come from road transportation, it also indirectly affects health through climate change pathways. The prevalence of asthma and wheezing, asthma exacerbations, paired lung function, cardiovascular mortality and morbidity, all-cause mortality, hospital admissions, and restricted physical activity are just a few of the health effects linked to exposure to air pollution, according to several meta-analyses and reviews. Lack of preventative measures and declining ambient air quality pose severe obstacles to the development of safe and healthy lifestyles (Chen. et al, 2019).

Education Aspect as a Challenge
The development of active transportation behaviours also involves education and training on a larger scale. As part of their regular schooling, Danish and German children receive in-depth instruction in safe and efficient cycling techniques. This includes both classroom and "on the road" lessons, first on a cycling training track specifically for kids and then on regular cycling facilities all over the city (Pucher et al. 2010). Training drivers to recognize and avoid endangering cyclists on the road is another crucial component of cycling safety. Even if they violate traffic laws, drivers in the Netherlands, Denmark, and Germany are nonetheless held liable for collisions with children and elderly bikers   (Pucher & Buehler, 2008).

Health Problems as a Challenge
Sedentary behavior, and too much sitting, as distinct from too little physical activity—have emerged as a new concern for chronic disease prevention and are associated with increased risk of type 2 diabetes, cardiovascular disease, and all-cause mortality. Working adults in urban areas sit for approximately 10 hours or more per day, which increases health risks   , Prolonged periods of sitting

include time spent in cars and can be associated with increased cardiovascular disease risk and poorer mental health which act as a challenge which limits people from choosing cycling (Corti et al., (2016).

 Costs related to cycles as a Challenge
Affordability (Initial costs, repairing costs), Age, Ability, Support for mechanics and availability are some challenges for cycling which limit people from choosing cycles in Lagos. These challenges are identified through a survey done for the commuters in Lagos (Mogaji, 2022).

For those who choose to cycle, affordability is an issue that becomes important to them. Many commuters shared their concerns about the cost of buying a good bicycle and repairing the costs of bicycles that can be used for commuting. Also, there is an issue with the prices of safety gear to protect themselves when cycling. People always look for cycles which are durable to ride to work and they do not come in cheap prices. Even though most commuters show their interest but are not aware of their financial commitments to purchase a bike (Mogaji. 2022).

2.3 Theoretical Background

The share of nonmotorized trips by utilizing data from various sources at a more detailed spatial level. They examined correlations between socioeconomic, environmental, and infrastructural factors and the proportion of nonmotorized commuting at the census block group level. Key socioeconomic factors affecting travel demand were identified as age (specifically the percentage of the population under 25 years old), student population (percentage of students in grades above fifth grade), and income (median household income). Environmental factors included travel time (mean population travel time) and neighbourhood land use patterns, encompassing population density, employment density, and neighbourhood diversity (Meiwu & Mei, 2007).

The case study of a Regional trail and Transit corridor at Uttah (Garcia &Khan, 2008), it is discusses the relationship between the usage of active transportation with a regional bike and pedestrian trail and the perception of safety. Based on community surveys results have found residents see barriers to active transportation as feeling unsafe, hard to access on foot or bike, hard to follow or insufficient wayfinding, limited parking, and availability of bathrooms, water fountains, and trash cans. The improvements that they have suggested are improvements for accessibility. landscape improvements and safety improvements like the availability of lighting in trails.

The methodology revealed that pedestrian streets with green spaces and better access, creating a quieter and less polluted environment, were preferred and encouraged walking habits more than traditional factors like distance and time.

To promote healthier communities, street design and pedestrian paths were found crucial. Surprisingly, safety was not a high priority, indicating that factors like traffic volume or parking availability did not significantly impact the choice of these pedestrian-friendly routes for business or school travel (Lopez et al., 2021).

According to the model, all four factors are described as follows Lopez. et al.,2020):

- Attractiveness: green areas, public transport facilities, pedestrian-friendly streets, furniture, public spaces, amenities, and tourist attractions
- Comfort: shade, noise, building heights, trees, and street width
- Safety: fence, traffic intensity, vehicle parking, and traffic management
- Accessibility: slope, obstacles, pavement width, and intersection distance

These factors can be identified as the factors that influence people to choose a route to use cycles. So, roads that deviate from those can be recognized as barriers.

Hypothesis Developed

To develop the hypothesis, variables described in the conceptual framework in the 3rd chapter are used to review the literature and theoretical background. Only the positive hypotheses are considered in this study.

- Potential barriers impact the cycling among daily commuters – H_1
- Potential Challenges impact cycling among daily commuters – H_2

3. Methodology

Independent Variables   **Dependent Variable**
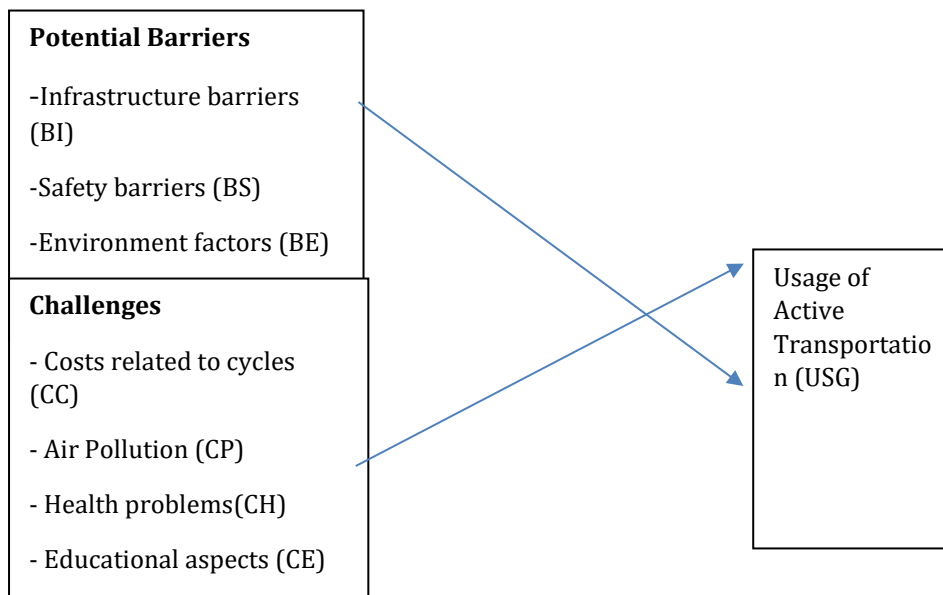
Figure 1: Conceptual Framework

The developed conceptual framework is based on a review of the literature. Independent variables are chosen from previously developed models, case studies, and literature by other comparable studies conducted by various authors over the years.

The developed conceptual framework is based on a review of the literature. Independent variables are chosen from previously developed models, case studies, and literature by other comparable studies conducted by various authors over the years. Infrastructure barriers are the barriers in the current transport network regarding the infrastructure which limit cycling in urban areas. It is measured under three categories and uses a mix, Presence of cycling lanes, and limited parking.

Safety barriers are the perceptions of safety among daily commuters. The 3 selected safety barriers in this study are Feeling unsafe, insufficient way finding, and Traffic Safety. Traffic safety in the sense is the accidents that can be faced by cyclists due to the high amount of traffic.

Environment Barriers are measured by Travel distance and Congestion-based delay. Travel distance is the distance that a commuter should travel from their residences to their final destination (offices, universities, and others). Congestion-based delays are the delays faced by commuters in peak hours due to high traffic volume.

Public Perception indicates the perceptions of individuals and society regarding cycling. There is a thing in a society where only low-income people are the ones who ride cycles and people who do white-collar jobs try to use their vehicles to maintain their statuses .

There are four Potential Challenges.

With the current economic situation, the prices of cycles have risen and the cost of repairing is high now. Also when people cycle on main roads they have to use safety gear and they also cost high. So, it can be a challenge for commuters to choose cycling.

Air Pollution also acts as a challenge for cycling, especially cyclists who are exposed to the environment. There are 3 indicators for measuring Air Pollution. They are Polluted misted air, diseases related to air pollution and Fumes by motorized vehicles.

Educational aspects are in the sense the knowledge about cycling at its safety among people in the society. School curriculums, Training for people about practices and benefits and educating vehicle drivers about the safety of cyclists are indicators of it.

Health Problems also act as a main challenge for cycling as discussed in the literature review. Age and poor Health conditions like obesity and cardiovascular diseases are used to measure this challenge.

The Dependent variable is also measured by using three indicators.

● Frequency of using cycling

● Likelihood of using cycling in future

● Recommending cycling to the people they know

As the study area to conduct the study to find out barriers and challenges for active transportation in Sri Lanka, the Galle Road corridor was selected (Appendix 1). In Galle road, the area from Moratuwa to Colombo Fort has been selected for further studies as the trial route to conduct the above-mentioned study. When selecting the study area, the land use pattern was considered. The targeted population of this study is the daily commuters who travel daily to fulfil their work, education, and recreational purposes in the Colombo district.

In this study, the confidence level is 95% and, a margin error is 5%. the sample size has been chosen using convenient sampling. The population who travel daily to Colombo by using the Gall

e road corridor is unknown. These data were collected using convenient sampling. It is a non-probability sampling method where units are selected for inclusion in the sample because they are the easiest for the researcher to access. This can be due to geographical proximity, availability at a given time, or willingness to participate in the research. To collect data a questionnaire has been among the population throughout the study period. The questionnaire consists of 3 categories.

Respondents were selected randomly, on the basis that each passenger knows about active transportation . Data were collected from 389 respondents. This research is conducted with a quantitative approach and it's a cross-sectional research. This study employs a deductive method of inquiry, one of the most commonly associated methods when doing scientific research where it involves hypotheses and theories and then testing them through emphatically observations and data analysis.

Barriers and Challenges for the usage of active transportation are evaluated by using the SPSS statistics package. Descriptive statistics are then applied to analyze answers to the questions on the identified barriers and challenges (mean, median, standard deviation, and frequency). To do the analyses, the variables relating to the identified barriers will be recorded in 5 categories. After those inferential statistics is used to do further analysis.

4. Results and Discussion

4.1 Results

Table 1: Validity

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.851
Bartlett's Test of Sphericity	Approx. Chi-Square	1117.142
	Df	36
	Sig.	.000

Source: Research Data

The KMO (Kaiser-Meyer-Olkin) test is a measure of sampling adequacy used in factor analysis to determine if the data set is valid and suitable for factor analysis. Bartlett's test of sphericity, on the other hand, is a test of whether the correlation matrix between variables is significantly different from an identity matrix. The KMO test outputs a value between 0 and 1. Values closer to 1 indicate that the data set is highly valid for factor analysis, in the table KMOL value is close to 1, It is 0.851, It shows the data is highly valid and suitable for the factor analysis.

The significance value of the table which is also known as P value of Barlett's test is came as 0.000. From the results, it can be identified that the above value is lesser than the const and significance value of 0.05. It can be indicated that the validity and suitability of the responses collected to a study has being addressed through the study.

Table 2: Reliability

Variable	Cronbatch's Alpha	N items
Infrastructure Barriers	0.639	3
Safety Barriers	0.676	3
Environmental barriers	0.598	3
Public Perception	0.621	3
Costs related to cycles	0.632	3
Air Pollution	0.765	3
Health Problems	0.741	3
Educational aspects	0.721	3
Usage of Active Transportation	0.748	3

Source: Research Data

When analyzing Cronbach's alpha values, Air Pollution, Health Problems , Educational aspects and Usage of Active Transportation (Dependent variable) have values more than 0.7. it has higher internal consistency and in high acceptance level. Values for Infrastructure barriers, Safety barriers, Public

perceptions and Costs are over 0.6, so those are also at an acceptable level. The Environmental barriers   have a value of 0.598, even though it is less than 0.6, it is   closer   to that value. So it can be interpreted that this value can be accepted.

Since all the variables have values very close to 0.7, each of these eight (8) elements   has an adequate value in terms of internal consistency, accuracy, and reliability.

Table 3: Correlation Analysis

		Usage of Active Transportation
Infrastructure Barriers	Pearson Correlation	-.395**
	Sig. (2-tailed)	0.000
	N	389
Safety Barriers	Pearson Correlation	-.448**
	Sig. (2-tailed)	0.000
	N	385
Environmental barriers	Pearson Correlation	-.301**
	Sig. (2-tailed)	0.000
	N	387
Public Perception	Pearson Correlation	.330**
	Sig. (2-tailed)	0.000
	N	389
Costs related to cycles	Pearson Correlation	-.426**
	Sig. (2-tailed)	0.000
	N	389
Air Pollution	Pearson Correlation	-.441**
	Sig. (2-tailed)	0.000

	N	389
Educational aspects	Pearson Correlation	-.408**
	Sig. (2-tailed)	0.000
	N	389
Health problems	Pearson Correlation	-0.006
	Sig. (2-tailed)	0.902
	N	389
**. Correlation is significant at the 0.01 level (2-tailed).		

Source: Research Data

The table displays the correlations between independent variables and the dependent variable "Usage of Active Transportation" in Sri Lanka.   Except Public Perception, all independent variables exhibit negative correlations with the dependent variable, indicating a decrease in active transportation usage. The strongest factor reducing active transportation is Safety barriers (-0.448), while Public Perception shows a slight positive relationship. However, the impact of Public Perception on increasing active transportation usage is uncertain. Health Problems are found to be insignificant and cannot be considered an independent variable affecting active transportation usage   .

Table 4- Coefficient Table

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.755	0.249		3.032	0.003
	Infrastructure barriers	-0.185	0.048	-0.196	3.843	0
	Safety barriers	-0.242	0.051	0.235	-4.703	0

		-0.006	0.049	-0.006	-0.13	0.009
	Environment barriers					
	Costs related to cycles	-0.077	0.059	-0.077	-1.312	0.019
	Air Pollution	-0.262	0.061	0.238	-4.307	0
	Educational aspects	-0.171	0.057	0.164	-2.989	0.003
a Dependent Variable: Usage of Active Transportation						

Source: Research Data

All the probabilities of the above discussed six independent variables are highly significant with negative beta values. This shows that those independent variables influence negatively the usage of Active Transportation which means they reduce the usage of Active Transportation. Only one independent variable has positive Beta value (Public Perception independent variable does not influence individually but can be influenced jointly.

Concerning the regression analysis and coefficient value, the study developed a function with their respective beta values. The function is illustrated as follows,

Usage of Cycling = 0.755 + (-0.185) Infrastructure barriers + (-0.242) Safety barriers + (-0.006) Environmental Barriers + (0.008) Public Perception + (-0.077) Costs related to cycles + (-0. 2620)Air Pollution + (-0.171) Educational Aspects +ϵ

In the above-mentioned equation, the Beta values of each independent variable shows the one-unit change of the independent variables will have an impact on the dependent variable, the Usage of Active Transportation.

Table 6: One Sample   T-Test (Testing Hypothesis)

One-Sample Test						
	Test Value = 0					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Infrastructure Barriers	100.88	388	0	3.90488	3.8288	3.981
Safety barriers	92.909	388	0	3.81662	3.7359	3.8974
Environment barriers	118.547	388	0	4.04861	3.9815	4.1158
Public Perception	109.577	388	0	3.46392	3.4018	3.5261
Costs related to cycles	96.897	388	0	3.73265	3.6569	3.8084
Air Pollution	93.588	388	0	3.65467	3.5779	3.7314
Educational Aspects	112.719	388	0	3.99572	3.926	4.0654
Health Problems	101.54	388	0	3.77806	3.7049	3.8512
Usage of Active Transportation	63.211	388	0	2.98029	2.8876	3.073

Source: Research Data

From the above sample test table, it can be shown that all significance values of independent variables are equal to 0.00. It means that they are less than the chosen level of significance 0.05. It indicates that the null hypothesis related to the independent variables can be   rejected and also can be concluded that the sample mean is significantly different from the hypothesized population mean.

From the above interpretations following null   hypotheses can be rejected.

- Potential barriers do not impact the usage of Active Transportation – H1,0
- Potential Challenges Factors do not impact the usage of Active Transportation – H3,0

4.2 Discussion
Although many researchers have concluded that barriers to transportation, few studies have investigated this relationship about cycling. And there are some

studies which have shown either challenges or barriers to cycling. The results of this study showed both the potential barriers and challenges for cycling in the Sri Lankan context. As expected, the study has found relationships with potential barriers and challenges with cycling. Some studies have shown that A person's need for acceptance from family and social groups grows with their network size. The decision to cycle as transportation can be influenced by these groups' views. (Xing et al., 2010). Subjective norms play a significant role in the decision to commute by bike. Coworkers' cycling behaviour and employer-provided financial incentives also impact bike usage. (Dill & Voros, 2007). Even in this study, it has been identified that the Income level of the people also impacts to the active transportation as a barrier   , specially people with higher income levels who tend to use their private vehicles. Perception of colleagues towards using cycling and Personal statuses which people are likely to maintain also affect the usage of active transportation.

Infrastructure barriers impact cycling in 3 different ways according to the study. Land Use mix in Colombo City especially the enough space in the city, Housing density, compactness, street interconnectivity, and the degree of land use mix are all influences to do active transportation (Badland et al.,2008). Present of cycle lanes on the road and Limited Parking for cycles in the Colombo metropolitan area affect to choice of cycling. Due to the lack of bike lanes on the roadways, cyclists must share the same area with cars, and the absence of separation increases the risk to their safety. In a research conducted by Tin et al. (2010), 88% of participants stated that the presence of bike lanes would significantly increase their likelihood of cycling.

As the Environment barriers, distance from households to Colombo city and delays caused by high traffic conditions impact cycling. Based on a survey of Austin, Texas citizens, residents frequently drive to stores nearby since crowded roads make it hard to take a walk there. (Susan et al., 2001).

According to Mogaji, 2022), commuters   in Lagos worry about the costs related to cycles and costs related   to of buying a good new bicycle and repairing costs of bicycles that can be used for commuting. Also, there is an issue with the prices of safety   gear to protect themselves when cycling. By conducting the study, it has been identified that this also affects to the   Sri Lanka more than other challenges as this is a 3rd world country and the economic changes are so high. With the current   economy of the country all of these prices are getting higher, so it directly affects people who have to spend more just for cycles from their income.

There are so many   down loops in educating people about the usage of cycling in the current system in Sri Lanka. There aren't any programs for educating people about cycling practices and benefits   , Also, in the school curriculum there   isn't any extensive training about safe and effective cycle techniques. In

Danish school, syllabuses are included with lessons in class as well as training on roads. They first put   kids cycling training   tracks specifically made for children and then on regular cycling facilities all over the city (Pucher et al. 2010). Drivers should be educated about the safety of pedestrian users   and cyclists. Because of these things, educational aspects also   affect the usage of active transportation. Even if they violate traffic laws, drivers in   Germany, the Netherlands and Denmark are nonetheless held liable for accidents with children and adult bikers. (Pucher & Buehler., 2008).

When talking about Air Pollution, misted and unclear polluted air, diseases which can   be caused by exposure to air pollution and exhaust fumes by motorized vehicles make people think   of using cycling as when using a cycle, commuters are always exposed to those things. When air quality declined, bicyclists were inclined to keep cycling if they felt more comfortable and safer. Fewer individuals commute by bicycle, Policies aimed at encouraging a pleasant atmosphere for riding should be paired with the substantial investments made to improve bicycle infrastructure, as they are likely to be replaced by. (Zhao et al.,2018)

Chen. et al. (2016) show that Chinese adults throughout the past twenty years, have been associated with an ongoing decrease in physical activity and a rise in poor diet, both of which boost the risk of developing these illnesses. Even though some studies have shown health problems as a challenge to active transportation, this study has shown that it doesn't directly imply the Sri Lankan context.

5. Conclusion

Three out of the four potential barriers, excluding public perception, display a negative correlation with the usage of cycling in Sri Lanka, indicating that these variables diminish the utilization of cycling. Similarly, all three identified potential challenges show inverse relationships with cycling, suggesting a reduction in usage.

Future research would benefit from exploring other forms of active transportation, not solely focusing on cycling. This study was based in a segment of the Colombo district, and it would be advantageous for future research to encompass other districts in Sri Lanka, providing a comprehensive national context. It would be beneficial for these studies to concentrate on understanding the impact of potential barriers and challenges in active transportation, along with studies highlighting the benefits associated with it.

The study presents recommendations to promote cycling in Sri Lanka, as well as suggestions for conducting future research in this field. Geographical limitations and some demographic constraints were identified as limitations of this study.

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TRACK IV- HUMAN RESOURCE MANAGEMENT

IMPACT OF WORK ENVIRONMENT ON WORK-LIFE BALANCE AMONG MARRIED FEMALE NURSES AT GOVERNMENT HOSPITALS IN SRI LANKA

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Abstract

As the heart of healthcare, married female nurses in Sri Lankan government hospitals face unique challenges in achieving work-life balance due to various factors. The primary goal of this study is to identify the impact of Work Environment on Work-Life Balance among Married Female Nurses working at Government hospitals in Sri Lanka. The current study used a multi-method quantitative study design following the positivism philosophy and deductive approach. A structured questionnaire was used to obtain primary data for quantitative data analysis. It also conducted extra interviews to get more thorough information. The sample size was 385 for the quantitative analysis and 12 for the qualitative analysis. Structured interviews were conducted following an interview checklist to gather descriptive data for qualitative analysis. The gathered data were analyzed quantitatively and qualitatively. Quantitative data were analyzed using SPSS software. Two main statistical methods were used in data analysis. Descriptive statistics summarize the data from a sample using indexes such as the mean, standard deviation, and Inferential statistics to draw inferences about the population using samples such as Hypothesis testing and Simple Linear Regression. Content analysis was used to analyze qualitative data. The findings revealed a positive and moderate influence between the working environment and work-life balance, with a significant coefficient of the three dimensions: workstation satisfaction, environmental workability, and job satisfaction. The study highlights the importance of creating a conducive work environment to enhance work-life balance for married female nurses in government hospitals.

Keywords: Government hospitals, married females, nursing officers, working environment, work-life balance.

1. Introduction

The adage "Health is Wealth" states that the most significant factor affecting a nation's overall wealth in the modern world is its citizens' health (Lakshmi et al., 2012). The healthcare industry may be considered a fast-expanding sector because of its top services and rising spending by both public and private entities. People today are increasingly aware of their health and the finest services (Maiya, 2015). When considering Sri Lanka's healthcare system, it has been demonstrated that nurses play a significant part in the hospital network's overall healthcare program (Rolls & De Silva, 2010). As a result, it's essential to look after them and establish a welcoming and modern workplace. Nurses experience stress because they are required to work overtime and are under continual pressure in the healthcare industry, where they are required to work around the clock. Because of this, maintaining a work-life balance is crucial for physical and mental health (Maiya, 2015). According to Azeem and Akhtar (2014), work-life balance and organizational commitment for nurses are the most important variables for them since they play a significant part in the performance of their organization and their family's well-being. The performance and productivity of the hospital are impacted by the nurses' dedication to their jobs and personal lives. Work-life balance impacts employees' views toward their firms and their personal lives.

According to the WHO, there are 59.8 million health professionals worldwide, and according to statistics from the Global Health Observatory, nurses and midwives make up more than half of several nations' national health workforces (World Health Organization, 2022). One of the top responsibilities of healthcare administrators is effective human resource management. According to the World Health Organization (2022), most health workers worldwide, including Sri Lanka, are nurses (World Health Organization, 2022). There is plenty of research that has been conducted worldwide to assess the work-life balance of female nurses, and the majority of them have been focused on factors such as stress, burnout, organizational commitment, etc. (Jameel & Alheety, 2023; Fukuzaki et al., 2021; Alheety, 2023; ensirani & Muthumani, n.d.; Reddy et al., 2010). Nearly 42% of nurses in Sri Lanka reported feeling some burnout, which is one of the work environment-related things that can be partly linked to an unsatisfactory work-life balance, according to a poll by the Sri Lanka Nurses Association. This emphasizes how critical it is to solve this matter quickly to protect nursing workers. Hospital personnel' dedication and work-life balance impact the facility's efficiency and effectiveness (Azeem and Akhtar, 2014). Therefore, the problem statement is to identify the causes of the WLB among nurses working in government hospitals in the Sri Lankan context, all of the elements above.

Prior research on work-life balance has primarily focused on various professional sectors, with a growing body of literature delving into the healthcare domain. Studies have shown that work-life balance has a direct impact on job satisfaction, employee well-being, and overall organizational performance (Susanto et al., 2022; Haar et al., 2014; Ansari et al., 2015; Mendis & Weerakkody, 2018; Khandelwal & Shekhawat, 2018 Divisekara, n.d; Dissanayaka & Hussain Ali, 2013). However, the work-life balance of married female nurses in the specific context of Sri Lankan government hospitals remains relatively understudied. Therefore, there is a gap in the existing literature regarding the specific challenges married female nurses face and the role of the work environment in shaping the work-life balance of married female nurses.

This research paper aims to investigate the influence of the work environment on the work-life balance of married female nurses serving in government hospitals in Sri Lanka. Analyzing both quantitative and qualitative data is expected to identify the influence of the working environment on their ability to maintain a satisfactory work-life balance. This research's findings contribute to the existing literature on work-life balance, specifically focusing on the experiences of married female nurses serving in government hospitals in Sri Lanka. The insights gained through this study are beneficial for healthcare policymakers, hospital administrators, and nursing leaders in understanding the influence of the working environment on the work-life balance of these nurses and devising targeted interventions and policies to enhance their well-being and job satisfaction.

As a result, the research focused on examining the impact of the working environment on the work-life balance among married female nurses serving in government hospitals in Sri Lanka.

1.1. Research Question

- What is the influence of the working environment on work-life balance among married female nurses at government hospitals in Sri Lanka?

1.2. Objective of the Study

- To identify the influence of working environment on work-life balance among married female nurses at government hospitals in Sri Lanka

2. Literature Review

The work-life balance of healthcare professionals, particularly married female nurses, has garnered increasing attention in recent years due to its impact on both personal well-being and job performance. Maintaining a healthy work-life

balance is essential for the overall job satisfaction and retention of nurses, contributing to improved patient care and organizational outcomes (Aamir et al., 2016; Holland et al., 2019).

2.1. Work-Life Balance in Nursing

Work-life balance refers to the equilibrium between the demands of work and personal life, allowing individuals to fulfill their professional responsibilities while tending to personal and family needs (Gragnano et al., 2020; Sundaresan, 2014; Gautam, 2018; Poelmans et al., 2008). In nursing, achieving a work-life balance is particularly challenging due to the demanding and often emotionally taxing nature of the profession. Nurses, especially those who are married, face unique challenges in managing work commitments and family responsibilities (Kim & Windsor, 2015; Winwood et al., 2006; Duarte et al., 2020; Bolton, 2000). Understanding the factors influencing work-life balance in this demographic is crucial for fostering a supportive work environment.

2.2. Gaps in Existing Literature

While the literature on work-life balance in nursing has expanded, a dearth of research specifically focuses on married female nurses in government hospitals in Sri Lanka. Limited studies have explored the unique challenges married female nurses face and the work environment's impact on their work-life balance. As the relationship between work environment and work-life balance may not be adequately covered in the literature now in circulation, this research aims to fill this gap by conducting a comprehensive investigation into this specific population.

2.3. Elements of Work Environment

Several scholars have highlighted the impact of the working environment on the work-life balance. Work-life balance has gained considerable attention in the contemporary workforce, especially among married female professionals. In the healthcare sector, female nurses are pivotal in delivering quality patient care. Understanding the factors that influence the work-life balance of married female nurses is crucial, and one of the primary determinants is the work environment. This literature review explores existing research on the impact of work environment, workstation satisfaction, environmental workability, and job satisfaction on the work-life balance of married female nurses in government hospitals in Sri Lanka.

2.3.1. Work Environment and Work-Life Balance

The work environment significantly impacts the work-life balance of nurses (Fukuzaki et al., 2021; Sherman, 2004; Boamah & Laschinger, 2016). Research

by Braithwaite in 2008 found that stressful work environments can lead to burnout and hinder nurses' ability to manage their personal lives (Braithwaite, 2008). A supportive work environment, on the other hand, is linked to improved work-life balance (Dehghan Nayeri et al., 2011). Factors such as staffing levels, workload, and management support are integral to a positive work environment (Bruyneel et al., 2023). A study conducted by Ali et al. in 2023 also indicated that the work environment significantly impacts nurses' work-life balance (Ali et al., 2023). This leads to the following hypothesis;

H1: There is a positive influence of the working environment on work-life balance among the married female nurses serving at government hospitals in Sri Lanka

2.3.2 Workstation Satisfaction

Workstation satisfaction, referring to contentment with one's physical workspace, is a critical component of the work environment (Chandrasekar, 2011). A study by Wijaya & Suwandana in 2022 noted that nurses who were satisfied with their workstations reported better work-life balance (Wijaya & Suwandana, 2022). Another study demonstrated that ergonomics, adequate supplies, and a comfortable physical environment contribute to satisfaction and indirectly impact nurses' work-life balance (Applebaum et al., 2010). This leads to the following hypothesis;

H1$_a$: There is a positive influence of workstation satisfaction on work-life balance among married female nurses serving at government hospitals in Sri Lanka.

2.3.3 Environmental Workability

Environmental workability involves the adaptability of the work environment to the needs of the employees (Herrity, 2021). In a study by Phillips et al. (2022), environmental workability was associated with less work-related stress and improved work-life balance among healthcare professionals, including nurses (Phillips et al., 2022). Another study has revealed that Nurses who had the flexibility to manage their schedules and responsibilities were better able to balance work and personal life (Ng et al., 2017). This leads to the following hypothesis;

H1$_b$: There is a positive influence of environmental workability on work-life balance among married female nurses serving at government hospitals in Sri Lanka.

2.3.4 Job Satisfaction

Job satisfaction is another crucial factor that interacts with the work environment to influence work-life balance (Susanto et al., 2022). Researchers like Al-Hussami (2008) have highlighted the relationship between nurses' job satisfaction and work-life balance. Satisfied nurses are more likely to find fulfillment in their personal lives, despite the often-demanding nature of their work (Yoder, 2010). Job satisfaction is not solely related to financial compensation but also includes factors like professional development, recognition, and support from superiors (Li et al., 2020). This leads to the following hypothesis;

H1$_c$: There is a positive influence of job satisfaction on the work-life balance among married female nurses serving at government hospitals in Sri Lanka.

Therefore, the current study identified the working environment as one of the most important factors affecting WFB among Married Female Nurses. Accordingly, the current study identified the working environment as an independent variable. The study hypothesizes that the working environment will significantly affect Work-Life Balance.

3. Methodology

3.1. Conceptualization

Figure 1: Conceptual Framework of the study
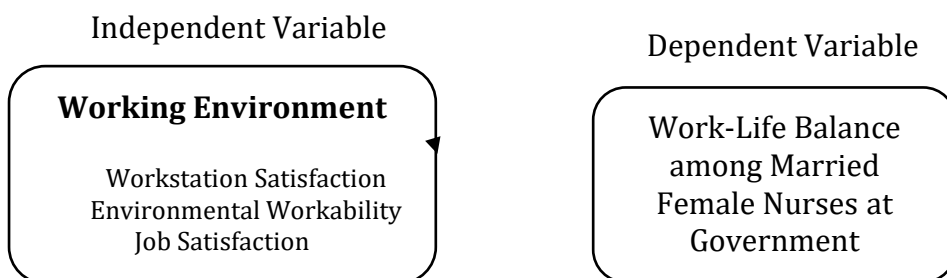
Source: Developed by the researchers

In this study, "workstation satisfaction" relates to an employee's contentment with the physical workspace and equipment.

"Environmental Workability" refers to the practical feasibility and effectiveness of environmental solutions, policies, or practices.

"Job satisfaction" encompasses a broader range of factors, including overall job contentment, relationships, and career opportunities.

3.2 Hypothesis

H1: There is a positive influence of the working environment on work-life balance among the married female nurses serving at government hospitals in Sri Lanka

3.2.1 Sub Hypothesis

H1$_a$: There is a positive influence of workstation satisfaction on work-life balance among married female nurses serving at government hospitals in Sri Lanka.

H1$_b$: There is a positive influence of environmental workability on work-life balance among married female nurses serving at government hospitals in Sri Lanka.

H1$_c$: There is a positive influence of job satisfaction on work-life balance among married female nurses serving at government hospitals in Sri Lanka.

3.3 Operationalization of the Study

Table 1: Operationalization

Variables		Dimensions	Measurements		Sources from which the dimensions were obtained
I n d e p e n d e	W or ki n g E n vi ro	Workstation Satisfaction	5 P o i n t L i k	Q1-Q5	Sumaiti & Saad, 2010
		Environmental Workability		Q6-Q10	Weale et al., 2019; Rajeshwari & Chandrika, n.d.

nt Variable	n m e nt		er t S ca le			
		Job Satisfaction	5 P o i n t L i k e r t S c a l e	Q11-Q15	Weale et al., 2019; A P Muthu Kumarasamy et al., 2015; Umma & Zahana, 2021	
Dependent Variable	Work-Life Balance	• Time Balance • Involvement balance • Satisfaction balance		Q16-20	Haar et al. (2014)	

Source: A literature survey

3.4. Research Design

Research projects must be well-planned. The current study was developed using the indicators listed below, which comprised several layers such as philosophies, approaches, choices, time spans, and processes. The Saunders Research Onion, created by Saunders et al. (2003), shows the stages involved in creating research. Simply put, the onion layers provide a more complete account of a research study process.

3.4.1 Research Onion

Figure 2: Research Onion
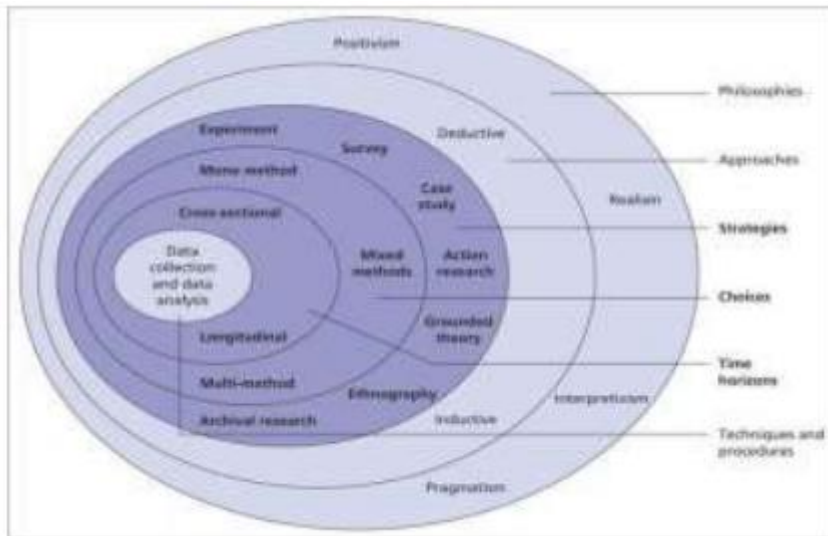
Source: Saunders et al., 2003

Research Onion for the current study

Figure 3: Research Onion for the current study
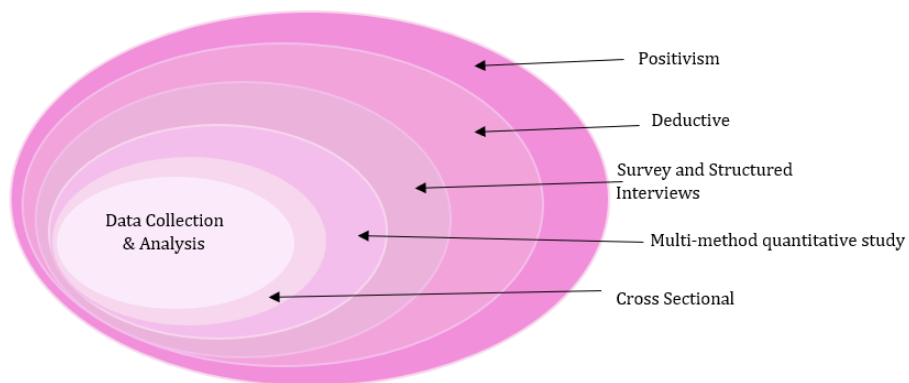
Source: Developed by the Researchers

3.4.2. Research Philosophy

In terms of research philosophy, positivism-based research philosophy was used in this study. In that context, the research outputs were generally based on logical reasoning, with the rationale primarily based on the information and results of the investigative activity (Park et al., 2020).

3.4.3. Research Approach

The deductive method is appropriate for our study because it enables us to expand upon pre-existing theoretical frameworks, test certain hypotheses, and provide results that can be extrapolated to a larger population. A deductive method offers a structured and systematic technique to examine this connection and add to the body of knowledge (Hinkel, 2005) in the field of nursing and healthcare management due to the complexity of the work environment and its influence on work-life balance.

3.4.4. Research Strategy

The research strategies used structured surveys and structured interviews in this study. The use of structured surveys and structured interviews in this research is justified because it allows for comprehensive data collection, the integration of quantitative and qualitative data, cross-validation of findings, capturing diverse perspectives, exploring complex relationships, and delving into the nuanced aspects of the work environment (Newman & Benz, 1998). This approach is well-suited to address the multifaceted nature of the impact of the work environment on work-life balance among married female nurses in government hospitals in Sri Lanka.

3.4.5. Choice

As the choice, multi-method was used. The decision to utilize a multi-method approach in this study is justified since it allows for a more thorough, balanced, and reliable inquiry into how the work environment affects married female nurses' work-life balance. The depth and breadth of the research results are eventually enhanced by this method because it enables the exploration of complicated linkages, the capturing of many viewpoints, and the generation of valuable suggestions based on quantitative and qualitative data.

3.4.6. Time Horizon

The time horizon is cross-sectional. It is justifiable to utilize a cross-sectional time horizon for this study because it provides a useful, effective, and economical means to examine how the work environment affects married female nurses' ability to combine their personal and professional lives in Sri Lankan government hospitals. It offers timely, pertinent information that can aid in current decision-making as a starting point for future research projects.

3.5. Population and Sample
3.5.1. Population

A population is a large group about which it is necessary to gather particular information (Banerjee & Chaudhury, 2010). All the married female nurses employed by the public health system in Sri Lanka represent the population for this study.

3.5.2. Sample Techniques

Quantitative data were collected using the Convenience sampling technique. The sample selection was done purposefully for qualitative data to ensure diverse viewpoints and representation of different perspectives. Participants were carefully chosen to represent a variety of viewpoints.

3.5.3. Sample Size

To ensure a sufficient and complete representation of viewpoints for the mixed-method inquiry, the quantitative data were gathered from a sample of 385 individuals. In contrast, the qualitative data achieved saturation with 12 participants.

3.6. Data Collection

3.6.1. Quantitative Data Collection

A sample of 385 married female nurses was given self-administered surveys to gather quantitative data.

3.6.2. Survey Instrument

In this study, the researchers developed the measurement scale for each variable in developing the questionnaire. An exploratory analysis validated the questionnaire used in this study.

3.6.3. Qualitative Data Collection

Twelve of the original sample's participants were selected for structured interviews, which were used to collect qualitative data. The structured interviews enabled a thorough investigation of the participants' perspectives and experiences about work-life balance and the effects of the workplace.

3.6.4. Interview Questions and Interview Guide

The interview checklist was a structured instrument designed to guide the structured interviews conducted with the participants.

The structured interview questions for the study consist of 5 categories, as presented in Table 2.

Table 2: The categories of structured interview questions

Category	Description
Demographic data	It describes the personal information of the research participant.
Workstation Satisfaction	They are assessing the satisfaction of nurses with their physical workstations, including comfort, ergonomics, and equipment.
Environmental Workability	We are exploring the feasibility of environmental initiatives and measures that may affect work-life balance.
Job Satisfaction	We are examining how overall job satisfaction relates to work-life balance and whether satisfaction with job-related factors contributes to or hinders work-life balance.
Work-Life Balance	Exploring the nurses' perception of work-life balance, the challenges they face, and their strategies for achieving and maintaining this balance

Source: Developed by the Researchers

3.7 . Data Analysis

3.7.1 Quantitative Data Analysis

SPSS statistical software, a linear regression, which involves one independent variable, is used. The data on work-life balance, job satisfaction, and opinions of

the work environment among married female nurses were statistically analyzed to find trends, correlations, and patterns.

3.7.2. Qualitative Data Analysis

Participants' narratives were found using content analysis to provide a deeper insight into their experiences and viewpoints. This study uses a mixed-method approach to give a more thorough and nuanced knowledge of the variables affecting married female nurses' impressions of the work environment, job satisfaction, and work-life balance in Sri Lankan government hospitals.

4. Data Analysis and Discussion

4.1. Validity of the Instruments

When developing or adapting a questionnaire, it is essential to assess its reliability, validity, and the quality of the data it will produce. Exploratory analysis can help to achieve this (Kwon et al., 2014). In researchers developed the measurement scale for each variable in developing the questionnaire. An exploratory analysis was conducted to validate the questionnaire for this research. An item analysis was conducted to assess the performance of individual questionnaire items. It examined the distribution of responses for each item and identified the items with extremely skewed and limited responses. Then, Reliability Analysis was done by calculating the reliability coefficient Cronbach's alpha, to assess the internal consistency of the questionnaire. High internal consistency indicates that the questionnaire items measure the same underlying construct. Experts can evaluate whether the measurement scales adequately cover the intended construct (Kimberlin & Winterstein, 2008). Accordingly, in this study experts have evaluated whether the questionnaire and the structured interview checklist adequately cover the intended construct. Further, pilot testing was also done with a small sample of 35 to identify any issues with the questionnaire's clarity, wording, or format, and necessary revisions to the questionnaire were made based on the feedback received. To complete the exploratory analysis, Qualitative Feedback was also collected from participants about their experience with the questionnaire and the structured interview checklist. It provided insights into the questionnaire's clarity and relevance.

4.2 Cronbach's Alpha Statistics of Scale

Table 3: Cronbach's Alpha Statistics of Scale

Scale	Variable type	Items	Real Test Cronbach's Alpha
Workstation Satisfaction	Independent	05	0.713
Environmental Workability	Independent	05	0.728
Job Satisfaction	Independent	05	0.811
WLB	Dependent	05	0.946

Source: Study Data 2022– Created through SPSS

The results indicate that all the scales, workstation satisfaction, environmental workability, job satisfaction, and work-life balance have high internal consistency, as evidenced by their Cronbach's Alpha values (0.713 for "workstation satisfaction", 0.728 for "environmental workability", 0.811 for "job satisfaction" and 0.946 for "work-life balance"). These values suggest that the items within each scale are strongly correlated and effectively measure the constructs they intend to assess. A high Cronbach's Alpha value is desirable as it increases confidence in the reliability of the measurement. With a Cronbach's Alpha of 0.946 for "work-life balance," researchers can have high confidence in the consistency and accuracy of the responses provided by participants related to work-life balance. Similarly, Cronbach's Alpha of 0.750 for the "Working Environment" scale indicates a good level of internal consistency among the items, providing confidence in the reliability of this measure as well.

4.3. Analysis for Descriptive Statistics

Table 4: Results of Descriptive Statistics All Variables

Measures		Workstation Satisfaction	Environmental Workability	Job Satisfaction	WLB
N	Valid	385	385	385	385
	Missing	0	0	0	0

Mean	3.1528	3.6852	3.2157	3.4285
Std. Deviation	0.55642	0.78465	0.67352	0.7156
Skewness	0.865	0.424	0.846	0.715
Kurtosis	-0.243	-1.122	-0.261	-0.282
Std. Error of Kurtosis	0.645	0.645	0.645	0.645

Source: Study Data 2022– Created through SPSS

The table presents the descriptive statistics for the independent and dependent variable: Workstation Satisfaction, Environmental Workability, Job Satisfaction, and Work-Life Balance (WLB). The mean values for independent variables indicate the average responses for each variable. The mean scores for all measures are above 3, indicating moderate satisfaction levels. The standard deviations show the degree of variability within the data. It suggests relatively low variability in responses. All variables exhibit positive skewness, implying that most respondents rated their working environment and work-life balance favorably. Additionally, negative kurtosis suggests that the data have relatively lighter tails than a normal distribution.

4.4 Bivariant Analysis of Variables of the Study

The study uses the Pearson Correlation approach to provide a bivariate examination of the impact between exogenous factors and the dependent variable. Based on the Pearson sum displacement correlation matrix, the correlation coefficient displays the influence's strength between two variables. Pearson Correlations statistics of the current study are as follows.

Table 5: Pearson Correlations of Variables

Independent Variable	Pea. Corr.	WLB
Workstation Satisfaction	Pea. Corr.	.779**
	Sig. (2-tailed)	.000
	N	385
Environmental Workability	Pea. Corr.	.752**
	Sig. (2-tailed)	.000

	N	385
Job Satisfaction	Pea. Corr.	.812**
	Sig. (2-tailed)	.000
	N	385

Source: Study Data 2022– Created through SPSS

The above data represents the correlation between the dimensions of the independent variable (Workstation et al.) and the dependent variable, work-life balance (WLB), in the study. The results indicate a significant positive correlation between each independent variable and work-life balance. The Pearson correlation coefficient values suggest that the working environment positively affects work-life balance. The p-value is zero, which indicates that the correlation is significant at the 0.05 level. Accordingly, the findings suggest that a positive work environment effectively improves work-life balance for the government nurses in the study.

4.5 Identification of the influence of Working Environment on Work-Life Balance (Individual coefficients)

The study created an independent coefficient table to discover the influence and validate the study's claim. Individual coefficient values are shown in Table 6.

Table 6: Individual Coefficient Table

Model	Unstandardized Coefficients		Standardized Coefficients	Sig.	Collinearity Statistics	
	B	Std. Error	Beta		Tolerance	VIF
Workstation Satisfaction	.528	.124	.428	.000	.604	1.647
Environmental Workability	.217	.091	.219	.021	.633	1.562
Job Satisfaction	.264	.090	.272	.017	.674	1.446

Source: Study Data 2022– Created through SPSS
Table 6 presents a regression model's individual coefficient results for the "working environment" variable. The unstandardized coefficient (B) indicates the change in the dependent variable (work-life balance) associated with a one-

unit change in the predictors (workstation satisfaction, environmental workability, and job satisfaction). The standardized coefficient (Beta) of 0.428, 0.219, and 0.272 represents the strength and direction of the relationship between the variables. The T-value of 4.17, 2.34, and 2.72, respectively, represent the associated significance level (Sig.) of 0.010, indicating that the "working environment" variable significantly impacting the dependent variable. Collinearity statistics (Tolerance and VIF) assess multicollinearity, with values close to 1 indicating low collinearity. Since the results are highly significant and have a positive effect, following hypotheses are valid.

Table 7: Results of the Hypothesis Testing

Hypothesis	Pearson Correlation	Significance of Correlation	Conclusion
H1: There is a positive influence of the working environment on Work-Life Balance	.781**	<.000	Accepted
H1$_a$: There is a positive influence of workstation Satisfaction on Work-Life Balance	.779**	<.000	Accepted
H1$_b$: There is a positive influence of environmental workability on Work-Life Balance	.752**	<.021	Accepted
H1$_c$: There is a positive influence of job satisfaction on Work-Life Balance	.812**	<.017	Accepted

According to hypothesis (H1), work-life balance is influenced by the working environment. There is a significant positive association between these variables, as shown by the Pearson correlation value of .781**. This link is statistically significant at the level of .000 significances. As a result, the hypothesis is accepted, supporting the finding that the work-life balance of married female employees in government hospitals in Sri Lanka is significantly influenced by their working environment.

All predictor factors and work-life balance have correlation coefficients higher than 0.70, demonstrating a significant positive influence. All correlation coefficients have p-values indicating less than 0.05, indicating significant statistical significance. Therefore, the three sub-hypotheses (H1a, H1b, and H1c) are accepted. These results indicate a positive association between workstation satisfaction, environmental workability, and job satisfaction with work-life balance.

4.6. Qualitative data analysis

It is important to note that quantitative analysis is only a partial analysis to interpret the findings fully, and additional information would be needed to interpret the findings fully, and draw conclusions. Therefore, qualitative data analysis will facilitate a better interpretation of the results obtained through quantitative data analysis. The work environment plays a crucial role in a nurse's work-life balance. The interviews conducted with 12 married female nurses working at government hospitals in Sri Lanka found that nature of work, workability, and peers are the significant factors that impact work-life balance. Regarding the nature of work, the participants identified that bearable is more conducive to a better work-life balance. One nurse stated,

> "Working on a routine schedule helps me balance work and life as I can plan my activities accordingly."

(Respondent 05)

However, some nurses also mentioned that dynamic and challenging work can also be beneficial for work-life balance, as it keeps them motivated and engaged. Regarding workability, the physical settings and working conditions were recognized as important factors. Nurses appreciated the availability of suitable equipment and infrastructure to perform their duties effectively.

> "If the physical environment is not suitable, it affects my mood and performance, which, in turn, affects my personal life too."

(Respondent 03)

One participant stated. Additionally, flexible working arrangements, such as the ability to work from home or adjust working hours, were also mentioned as critical for better work-life balance. The nature of peers also plays a vital role in work-life balance. Supportive and well-trained peers provide a positive work environment that reduces stress and promotes a better work-life balance. One participant stated,

> "If colleagues are well-trained and supportive, the workload can be shared, ultimately leading to a better work-life balance."

(Respondent 01)

However, some nurses also highlighted the challenges they face in maintaining work-life balance due to the nature of their work. For instance, one nurse mentioned,

> "Sometimes, working overtime can be challenging and affect my personal life."

(Respondent 10)

Respondent 10 admits that working more hours might be challenging and detrimental to their personal life. This implies that lengthy work hours can

interfere with their capacity to reconcile work obligations with personal obligations, impairing their general well-being and work-life balance.

> "I find it difficult to maintain a healthy work-life balance, especially when working overtime. It leaves me with limited time for my family and personal activities."

(Respondent 5)

The difficulties of preserving work-life balance are highlighted by respondent number 5, particularly when confronted with the demands of overtime work. Their well-being is impacted by the lack of time for family and personal activities, which emphasizes the need to resolve work-hour rules and foster employee well-being.

> "The constant work pressure and high-stress levels can be overwhelming, making it challenging to juggle my professional duties with my responsibilities at home."

(Respondent 7)

Respondent 7 has a sensation of overwhelm of the ongoing job pressure and stress high-stress levels, which affects their capacity to balance personal and professional obligations. This quote emphasizes the importance of workplace stress-reduction techniques and social support networks for improving work-life balance and general job satisfaction.

> "Balancing work and personal life can be a real struggle, and it is even harder when the workplace demands too much of my time and energy."

(Respondent 3)

The challenge of striking a healthy work-life balance, particularly when the job requires a lot of time and effort, is openly acknowledged by Respondent 3. This conflict highlights the value of setting limits and encouraging a work environment that respects and acknowledges people's personal lives.

> "I believe that the work environment plays a significant role in determining how well I can manage my work and personal life. A supportive and understanding workplace can make a big difference."

(Respondent 9)

Respondent 9 highlights the critical impact that workplace culture has on work-life balance. Improved work-life integration, increased job satisfaction and general well-being for employees, are all made possible by helpful and understanding work environments. Also, they mentioned that work pressure and high stress levels could negatively impact their work-life balance. The study indicates that the work-life balance among married female nurses working at government hospitals in Sri Lanka is influenced by several factors related to the work environment. Employers need to ensure a conducive work environment to improve their employees' work-life balance.

The study emphasizes how important the workplace environment affects nurses' ability to combine their professional and personal lives. The qualitative interviews revealed several factors that significantly affect work-life balance. Participants acknowledged that significant factors impacting their capacity to combine work and home life successfully were the nature of the task, workability, and colleagues. Participants thought that the nature of the work was favorable to a greater work-life balance since the duties were predictable and doable. However, other nurses also pointed out that dynamic and difficult work might be advantageous since it keeps them engaged and motivated. Workability elements, including physical surroundings and working circumstances, were also noted as crucial. Nurses valued a nice physical workplace with quality equipment because it improved their morale, work performance, and, ultimately their personal lives. A better work-life balance was also highlighted as requiring flexible working arrangements, such as working from home or changing working hours. Additionally, the character of peers was crucial. A nice work environment with supportive and well-trained coworkers encouraged stress reduction and improved work-life balance. Nevertheless, because of the nature of their profession, several nurses found it difficult to establish a work-life balance, which led to worries about overtime and its effects on their personal lives. The study highlights how crucial it is to address these issues to improve the work-life balance of married female nurses working in government hospitals.

4.7 Discussion

The current study deals with workstation satisfaction, environmental workability, and job satisfaction variables. Literature from various contexts evidences the related factors of the work environment and their impact (Boamah & Laschinger, 2016; Roth et al., 2021; Sharma, 2016; Umamaheswari et al., 2021). In the current study, it has only been considered three variables and the impact. The specialty is overlapping factors from similar studies that the selected variables of this study have covered. Factors such as workload, working hours, organizational support, and physical settings can significantly impact their ability to manage work and family responsibilities (Holland et al., 2019; Manyisa & van Aswegen, 2017; NABIRYE et al., 2011). The work environment's supportiveness and flexibility are vital for married female nurses in balancing their roles as healthcare professionals and family members. Excessive workload and long working hours are major stressors affecting nurses' work-life balance (Singh et al., 2020; Skinner et al., 2013; Gribben & Semple, 2021; Kandel, 2022). Married female nurses often find it challenging to allocate adequate time to personal and family commitments due to the demands of their profession. A high workload can lead to physical and emotional exhaustion, negatively impacting their overall well-being and family life (Tayfur et al., 2013; ILIES et al., 2010;

Tayfur & Arslan, 2013). Organizational support, including policies related to flexible working arrangements and family-friendly initiatives, is vital in promoting work-life balance among nurses (Greenhaus & Powell, 2006; Gatrell et al., 2016; McIntosh et al., 2003; White et al., 2003). Supportive policies, such as adjustable working hours, job sharing, and telecommuting options, give married female nurses greater control over their schedules.

The current study considered the physical work environment under "Workstation satisfaction". The physical work environment, including the availability of adequate resources, modern equipment, and ergonomic facilities, can impact nurses' job satisfaction and well-being (Cohen et al., 2006; Capone et al., 2022; Rechel et al., 2009; Heerwagen et al., 1995). A well-maintained and safe working environment reduces stress levels and increases job satisfaction, positively influencing work-life balance. The peers and relationships were considered under the variable "job satisfaction" in the current research. The support and camaraderie among colleagues and supervisors can significantly influence nurses' work-life balance (Battistelli et al., 2012; Lopes Morrison, 2005; Rashmi et al., 2021; Laschinger et al., 2007). Married female nurses who have supportive and understanding peers are more likely to experience reduced stress and a better balance between their professional and personal lives (Moloney et al., 2017; Rechel et al., 2009)

5. Findings

The study discusses the impact of the work environment on work-life balance among married female nurses working at government hospitals in Sri Lanka. The workplace impacts work-life balance, according to hypothesis (H_1). The sub-hypotheses $H1_a$, $H1_b$, and $H1_c$ are supported by the same conclusion. The study revealed that their working environment greatly impacts the work-life balance of married female employees in the government sector. Through interviews with 12 participants, qualitative data analysis was conducted to complement the quantitative findings. The major factors influencing work-life balance were identified as workstation satisfaction, environmental workability, and job satisfaction. Participants mentioned that routine and bearable work schedules allowed them to maintain a better work-life balance, as they could plan personal activities accordingly.

However, some also found dynamic and challenging work to be motivating and beneficial. Workability, including physical settings and working conditions, was also crucial. Good equipment and infrastructure positively influenced mood, performance, and personal life. Flexible working arrangements, like working from home or adjusting hours, were seen as critical for achieving work-life balance. Supportive and well-trained peers helped share workloads and reduce stress, leading to a more positive work environment. Work-life balance was,

however, severely influenced by difficulties, including putting in extra hours, deadline pressure, and high levels of stress. The study underlines the need to create a supportive workplace environment for married female nurses to enhance work-life balance. To assist their workers' well-being and improve their work-life balance, employers should consider these variables.

The report highlights the need for a welcoming and empathetic workplace that provides flexible scheduling and values work-life integration. To encourage better work-life balance for their workers, employers can establish policies and activities that seek to create a welcoming environment. This study provides a thorough knowledge of the dynamics of work-life balance and its link to the workplace via the use of both quantitative and qualitative data, with important ramifications for nursing organizations and practitioners.

6. Conclusion

This research aimed to investigate the impact of the work environment on the work-life balance among married female nurses working in government hospitals in Sri Lanka. Employing a multi-method quantitative study design, quantitative and qualitative data were collected and analyzed to gain comprehensive insights into the experiences and perceptions of married female government health sector employees in Sri Lanka. Quantitative analysis using SPSS revealed the working environment's positive and moderate influence on work-life balance. The significant coefficients of working environment; workstation satisfaction, environmental workability, and job satisfaction suggest that improvements in the work environment can lead to better work-life balance outcomes for married female nurses.

However, it is crucial to acknowledge some limitations of the study. The research was limited to government hospitals in Sri Lanka, and the findings may not be generalizable to other healthcare settings or countries. Furthermore, self-reporting biases and the subjectivity inherent in qualitative data analysis might have influenced the results. The current research employs convenience sampling. The drawback of convenience sampling in research is that when participants are selected based on accessibility, there may be selection bias and a non-representative sample as a result (Edgar & Manz, 2017). This may reduce the study's findings' reliability and ability to be applied to a larger group.

Future research endeavors should consider investigating additional workplace components and their impact on the work-life balance of nurses. Instead of relying solely on convenience sampling, researchers may enhance the study's credibility by employing diverse sampling techniques. While the current study centers on married female nurses, it is worth exploring the perspectives of male nurses to offer a more inclusive and gender-diverse understanding of work-life

balance in healthcare. Additionally, with their unique cultural and customs influences, private hospitals may present distinct workplace circumstances. Therefore, replicating the study among married female nurses in the private sector can provide comparative insights into workplace environments. The current research follows a cross-sectional design, offering a snapshot of the influence between the work environment and work-life balance. Future investigations could consider expanding this to a longitudinal study, enabling tracking changes and developments over time. Such an approach would provide a more in-depth exploration of the dynamics at play and facilitate the identification of any discrepancies in work-life balance among nurses.

It is clear that among married female nurses, work-life balance is highly influenced by workstation satisfaction. Government hospitals in Sri Lanka should make investments in ergonomic and pleasant workspaces a top priority to improve this aspect. This entails outfitting nursing stations with adjustable workstations, comfortable seats, and sufficient lighting and ventilation. Nurses' unique workplace demands should be met by implementing regular assessments and feedback methods.

The study emphasizes how crucial environmental workability is to achieving a work-life balance. Hospitals should ensure that their infrastructure, facilities, and resources are easily accessible and kept in good condition to provide a more favorable work environment. Having enough supplies, up-to-date medical equipment, and effective communication methods is crucial. Additionally, keeping the workplace tidy, orderly, and safe might help nurses feel less stressed and have a better work-life balance.

The fact that work-life balance and job satisfaction are positively correlated emphasizes how crucial it is to address the variables that affect nurses' job happiness. The enhancement of nurse-patient ratios, the mitigation of task stress, and the facilitation of training and development opportunities have to be the top priorities for government hospitals. In addition to providing competitive pay and benefits, fostering a culture of appreciation and recognition may improve nurses' job satisfaction, which can favor their work-life balance.

The recommendations mentioned above provide a comprehensive framework for hospitals to create a more supportive and conducive environment that acknowledges the unique challenges nurses face, ultimately enhancing their well-being through work-life balance. Implementing these recommendations can result in a more content and balanced nursing workforce, which is vital for the overall quality of healthcare in Sri Lanka.

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DETERMINANTS OF WORK ENGAGEMENT OF EXECUTIVE LEVEL EMPLOYEES IN LARGE-SCALE APPAREL MANUFACTURING COMPANIES IN WESTERN PROVINCE IN SRI LANKA

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Abstract

Determinants of work engagement reflected different levels of outcome for work engagement. Following this problem, the researcher argues that the appropriateness of perceived supervisor support, perceived organizational support, communication, and work-family conflicts explain executive-level employee work engagement. Further, the Researcher has applied the social exchange theory to explain the impact of four selected factors on work engagement. The sample of the study was 152 executive-level employees in large-scale Apparel manufacturing companies within the Western province in Sri Lanka, and the analytical tool was regression analysis. The results revealed that except for work-family conflicts, the other three variables (perceived supervisor support, perceived organizational support, and communication) have a significant impact on work engagement. Therefore, the study suggests that the management of Apparel manufacturing companies must need to rethink their engagement strategies and required to build strategies relating to good supervisory support, good organizational support, and good communication. Also, the researcher suggests that future researchers can consider more factors, other industries, and larger samples when conducting future studies.

Keywords: Communication, perceived organizational support, perceived supervisor support, social exchange theory, work engagement, work-family conflicts.

1.Introduction

Employees are the most valuable and important resource of any organization and the key to success in any organization. Having competent and skilled employees is the strength of an organization and if those employees are engaged to the organization, they bring a competitive advantage to any organization. Therefore, the concept of employee engagement is a vast talk topic in today's business world.

Employee engagement (EE) is the concept derived from the broad phenomenon of Human Resources Management. Since this concept is very important for organizations, they always try to put more strategies to engage employees in the organization. They try to identify what factors contribute more to gaining employee engagement, and then they try to implement the best strategies based on those factors.

The concept of EE was introduced to the world by Kahn in 1990. Kahn (1990) initially defined engagement as "The harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively and emotionally during role performances" (p. 694). The second important perspective of engagement is defined as a "positive or opposite side of burnout" (Maslach et al., 2001, p. 418). Hence the general idea of EE can be written as when employees are careful, concerned, and attached to their assigned work roles and to the organization, they bring all the aspects of success into their work roles and finally to the organization.

According to Hewitt, as cited in Nienaber and Martins (2019) stated that only 24% of US employees were engaged in 2017. Gallup, as cited in Nienaber and Martins (2019) stated that only 33 % of employees are engaged, according to Gallup Survey 2017. Gallup, as cited in Mayuryan and Kailasapathi (2020) has stated that there is an issue with declining employee engagement, and it mentioned that only 15% of employees in the world are engaged at work and the other 85% are actively disengaged or not engaged. "In Sri Lanka also had lower work engagement level. In Sri Lanka, 14% of employees are engaged, and 62% of the workforce is not engaged. It showed that 23% of employees were actively disengaged" (Crabtree as cited in Thisera & Wijesundara, 2020, p. 2624).

According to the literature survey, researchers revealed a number of factors that influence the level of work engagement. Some of them are workplace climate, rewards, talent management, workplace safety, and leadership level (Wollard & Shuck (2011). In addition, most researchers used the Social Exchange Theory

(SET) to explain the relationship between a variety of determinants (Choo et al., 2013; Sack, 2006) and employee work engagement.

1.1 Research problem

Schaufeli et al. cited in Saks and Gruman (2014) define "engagement" as a "positive fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption. Vigor means high levels of energy and mental resilience while working; dedication refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, and challenge; absorption refers to being fully concentrated and engrossed in one's work" (p. 158).

When employees are engaged in their work it brings many positive outcomes for individual performance as well as for organizational performance. As stated by Chanana and Sangeeta (2020), when employees are engaged, they are attentive to their work and also their performance. Not only that, they expect to make a difference through their determination and hard work. Salanova et al., Saks; Bakker and Demerouti, Xanthopoulou et al., stated that EE has a significant impact on employee performance, organizational citizenship behavior, employee rollout-of-role performance, and financial performance of the organization and customer loyalty. Hakanen et al. Saks as cited in Saks and Gruman (2014), stated that engagement positively impacted job-related attitudes such as Job satisfaction and organizational commitment. Also, Cole et al. and Crawford et al; Saks; Schaufeli & Bakker; Harter et al., as cited in Saks and Gruman (2014), indicate that engagement enhances the health and wellness outcomes, high engagement level reduces turnover intention of employees, and this research paper also stated engagement also related to customer satisfaction, productivity, profitability, turnover, and safety of the organizations.

If those employees indicate less engagement level or disengagement, it also has bad impactson the organizations. Pech and Slade (2006) stated the consequences of employee disengagement as low morale, absenteeism, mistakes, cynicism, lack and lack of energy, lack of attachment, lack of satisfaction, minimal performance, and decline in innovations. Allenbaugh; Branham; DuVernay; Johnson; Momal; and Pater, as cited in Rastogi et al. (2018), stated that "Our synthesis of this literature reveals that disengaged employees are likely to be characterized by lack of commitment and turnover intention, low energy, low pro social behavior, withdrawal, disconnection, disaffection, disinterestedness; uncertainty; dissatisfaction; poor work performance, and counterproductive work behaviors" (p. 63). Therefore, when the employees are disengaged or terribleas show a lack of engagement, it has terrible consequences

for individual-level outcomes, as well as for individual-level and organizational outcomes.

Thisera and Wijesundara (2020) indicated that the Managerial level employees of the Apparel sector, 11% of highly disengaged employees, 66% of moderately engaged employees and only 23% of managerial level Apparel employees are engaged in their work roles. Also, this research paper indicated that this researcher carried out discussions with managerial-level employees in the Apparel sector in Sri Lanka, were convincing. These discussions convinced many employees are not fully engaged in their work roles in 2020. Therefore, with this evidence, we can conclude that there is less engagement level of managerial level employees in the Apparel sector in Sri Lanka.

In this research, the researcher identifies the level of work engagement with particular reference to Executive-level employees who work in Apparel Manufacturing Companies in Sri Lanka. Executive-level employees are the employees who analyze the information and make all the decisions for the business organization. Therefore, the researcher considers these executive-level employees the most suitable employees for the study. Also, these executive-level employees play an essential role in the organization contribute more toward the organization.

To identify the level of work engagement, the researcher conducted the preliminary survey by collecting data from Executive-level employees who work in Apparel manufacturing companies in Sri Lanka, for that researcher used an already developed scale, namely the Utrecht work engagement scaleWork Engagement Scale (UWES) developed by Schaufeli and Bakker (2004). This scale consists of 17 items, namely Vigor, Dedication, and Absorption. This scale is a 7-point Likert scale, with weights given as 1- Never, 2- Rarely (A few times only a year or less), 3- Rarely (Once a month or less), 4- Sometimes (A few times a month), 5- Often (Once a week), 6- Very often (A few times a week),7- Always (Every day).

The researcher has given 33 questionnaires to randomly selected Executive-level employees who work in Apparel manufacturing companies in Sri Lanka. The results of the preliminary survey indicated that there is less work engagement of Executive -level employees who work in the Apparel industry in Sri Lanka. (Table 1)

Table 1: Results of Preliminary Study

	Work Engagement
Actual mean value	3.22

Source: Primary data, 2021

Survey results indicated that a mean value of 3.22 is in the range of "rarely" (Once a month or less). According to Schaufeli and Bakker (2004), to prove the less work engagement level from the UWES 17 Scale, the mean value should be less than the critical mean value of 3.82. Therefore, the preliminary survey also provides empirical evidence that there is a problem of work engagement among Executive-level employees who work within the apparel industry.

In addition, the researcher has collected ideas from HR practitioners regarding the level of employees' work engagement. The researcher conducted the discussions with randomly selected HR practitioners of Raigam Group of Companies, Brandix Essentials (Pvt) Ltd, and Trendsetters (Pvt) Ltd. All these practitioners expressed that they face difficulties when gaining work engagement from their employees. Two informants expressed their ideas on the level of work engagement as follows.

Informant One: Managers' support is the strongest predictor of work engagement since Employees invest energy into their jobs and enjoy carrying out the tasks associated with their jobs when they feel trusted and supported by their supervisors.

Informant Two: The way the organization supports their employees and is the way that employees determine how the organization values employees, and according to that, they determine their attitudes and behaviors, which benefit the organization.

Also, when a researcher takes ideas from executive employees, they expressed that the variety of managers' support and communication highly impact their work engagement. In addition, they mention they have less time to spend with their family due to the rough schedule in completing the orderson time.

Based on preliminary survey findings and direct interviews, the researcher has developed the research problem; why do executive-level employees have poor work engagement in large-scale Apparel Manufacturing Companies of Western provinces in Sri Lanka?

1.1. Construct, Theoretical background, and Hypotheses

1.1.1. Employee Work Engagement

Robinson, as cited in Markos and Gossaye (2021), stated that engagement means the positive attitude of employees about the organization and its values. Hewitt, as cited in Markos and Gossaye (2021), stated that engaged employees indicate, say, stay and strive for their behavior. When they are engaged, they speak positively about the organization, they desire to stay as an effective member of the organization, and they performed perform beyond the minimal requirements of the organization.

Schaufeli et al. as cited in Saks and Gruman (2014) define "engagement" as a "positive fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption. Vigor means high levels of energy and mental resilience while working; dedication refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, and challenge; absorption refers to being fully concentrated and engrossed in one's work" (p. 158).

Most of the scholars emphasized that communication (Adhitama & Riyanto, 2020; Kawshik & Guleria, 2020; Rodríguez-Sánchez and De-la-Calle-Durán, 2021; Dwiedienawati et al., 2020) Perceived supervisory support (Adhitama & Riyanto, 2020; Fannah et al, 2020; Dwiedienawati et al, 2020), perceived organizational support (Nguyen & Tran, 2021; Xu et al., 2021; Alshaabani et al., 2021) and Work-Family Conflict (WFC) (Chanana & Sangeeta, 2020; Nguyen & Tran, 2021) Play a vital role in determining the level of work engagement. Therefore, a researcher has selected four factors (Perceived Supervisor Support, Perceived Organizational Support, Communication and Work-Family Conflict) as key determinantsto employees' work engagement in large-scale Apparel Manufacturing Companies of Western province in Sri Lanka.

1.1.2. Perceived Supervisor Support (PSS)

"PSS is defined as employees' perspectives regarding how supervisors care about their well-being and value their contributions" (Kottke & Sharafinski cited in Shi & Gordon, 2019, p.2). "Supervisor support can be explained as employees' perception related to the extent as to how supervisors give importance to their contributions and take care about employee's welfare" (Khattak et al., 2017, p.23).

1.1.3. Perceived Organizational Support

Perceived organizational support is the way that employees determine how the organization values employees and according to that they determine their attitudes and behaviors which benefit the organization. Amir and Mangundjaya; Eisenberger et al. as cited in Naguyen and Tran (2021) "define the perceived organizational support as an overall employee belief about the extent to which organizations value their contribution and care about their well-being" (p. 416). Kurtis et al. as cited in Naguyen and Tran (2021) stated that "perceived organizational support (POS) refers to the organization's intent behind their receipts of favorable or unfavorable treatment" (p. 416).

1.1.4. Communication

Goldhaber as cited in Sitorus (2017) defines "organizational communication as a process of creating and exchanging messages in a network of interdependent relationships to address an uncertain or ever-changing environment. Building a good relationship between employer and employee is the essential thing for the smooth operation of any organization. Employee organization relationship is one of the strategic objectives of an organization (Kang & Sun, 2017). Good employee communication ultimately resulted in quality employee relationships and supportive employee behavior toward the organization. Therefore, effective internal communication is the strong predictor of the organization's success (Gruning as cited in Kang & Sun, 2017).

1.1.5. Work-Family Conflict

Work-family conflict is a negative spillover because employees have to work extra time with their workload, which creates conflicts with family and ultimately it leads to stress and burnout (Googins as cited in Soomro et al., 2018). As cited in Yang et al. (2021), Liu and You further stated that work-family conflicts can influence individual work behaviors and attitudes.

1.1.6. Theoretical Perspective: Social Exchange Theory

Researchers have explained employee engagement from different theoretical perspectives, such as the needs satisfaction framework, the JD-R model, and social exchange theory (Sun & Bunchapattanasakda, 2019).

As cited in Sun and Bunchapattanasakda (2019), Kahn reveals that according to the need satisfaction framework, employees are engaged when their psychological needs are satisfied. Such as psychological meaningfulness, psychological safety, and psychological availability are satisfied. If employees do not receive those resources, they become disengaged. According to Saks (2006), Social exchange theory is another perspective that provides a theoretical base

for understanding and studying employee engagement. "In particular, managers need to provide employees with resources and benefits that will oblige them to reciprocate with higher levels of engagement" (Saks, 2006, p. 614). According to Choo et al. (2013), researchers used the Social Exchange Theory (SET) to explain employee engagement motivation. Saks (2006) stated that "SET argues that obligations are generated through a series of interactions between parties who are in a state of reciprocal interdependence" (p. 603). Cropanzano and Mitchell, as cited in Saks (2006), further stated that the basic principle of SET is that a relationship is created by trusting, loyal and mutual commitments and rules of exchange. According to rules of exchange, when one party receives economic and socio-emotional resources from one party, they feel obliged to repay it. Therefore, it is a kind of reciprocity relationship between the parties. Therefore, researchers use SET to determine why employees indicate different engagement levels and do not engage with the organization and their work roles (Saks, 2006).

1.1.7. Conceptual Framework

The researcher developed the conceptual framework with the existing researchers' findings and theoretical review. Here, the researcher took independent variables as communication, supervisory support, perceived organizational support, and work-family conflicts. With the social exchange perspective's support, the researcher tests how these independent variables affect gain work engagement.

Figure 1: Conceptual Framework
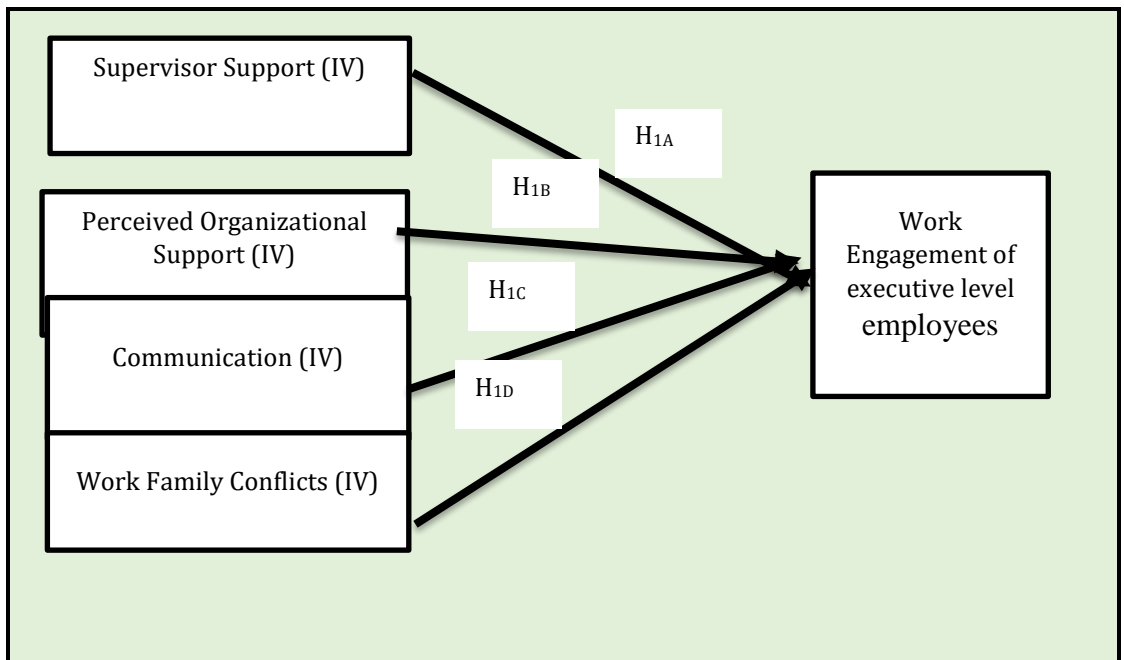
Source: Conceptual framework developed by the researcher based on existing literature, 2021)

1.1.8. Rational for Hypotheses Development

Supervisor support is the strongest predictor of employee engagement. The research paper of Holland et al. (2016) indicates that supervisor support and direct voice positively impact employee engagement. According to Social exchange theory, when employees receive good support from their supervisors, they try to give it back to the organization through high work engagement. Also, Jin and McDonald (2016) stated that Supervisory support directly and indirectly impacts work engagement through its influence on perceived organizational support. Again, Jose and Mampilly (2015) indicate that perceived supervisor support and psychological empowerment positively impact employee engagement.

Perceived organizational support is also a significant predictor of employee engagement according to the social exchange perspective. Perceived organizational support has a significant impact on work engagement because when employees receive support from their organization, they feel that they belong to the organization. They work hard to achieve organizational objectives. It increases the level of work engagement of employees (Dai & Qin, 2016). When employees feel that the organization values their contribution toward the

organization and the organization value their contribution toward the organization is highly concerned about employee wellbeing then employees try to repay it to the organization to meet their organizational-related obligations by indicating a high engagement level (Imran et al., 2020).

Communication is the strongest predictor of EE. Employee communication has a significant relationship with employee engagement level, which is the predictor of employee engagement (Krishnan & Wesley, 2013). Siddqui and Sahar (2019) stated that through strategic and tactic communication, the engagement level of banking sector employees is increased. Therefore, researchers emphasize that Communication impacts the level of employee engagement (Bedarkar & Pandita, 2013).

Existing researchers also reveal that Work-family effects impact work engagement (Perry, as cited in Soomro et al., 2018). Yang et al. (2021) revealed isa significant negative correlation between work-family conflict and work engagement. When employees do not have enough resources to control and understand the difficulties and pressures they perceive, work-family conflicts arise and result in results, work-family conflicts arise, resulting in reduced work engagement.

According to the SET's theoretical underpinnings and empirical literature review, the following hypotheses can be drawn regarding the influence of perceived supervisory support, perceived organizational support, communication, and work-family conflict on the construct of work engagement:

H_1 – Perceived supervisor support to impacts gaining work engagement from Executive level employees in scale large-scale Apparel Manufacturing companies in Western Province, Sri Lanka.

H_2– Perceived organizational support impact on gaining work engagement from Executive level employees in scale large-scale Apparel Manufacturing companies in Western Province, Sri Lanka

H_3 – Communication to gain work engagement from Executive-level employees in scale large-scale Apparel Manufacturing companies in Western Province.

H_4 – Work-family conflicts to gain work engagement from Executive-level employees in large-scale apparel manufacturing companies in Western Province.

2.   Methods

The researcher applied the positivism approach and selected the deductive approach. To measure the variables, the researcher selects the quantitative methodology. In this research, the researcher uses explanatory research since the researcher wants to see the causal effects of whether the proposed variables (Communication, Supervisor support, perceived organizational support, Work-family conflicts) affect to work engagement. The unit of analysis is executive-level employees who work in the Apparel industry. Therefore, the unit of analysis is individuals. The researcher collects the data from executive-level employees at one time only; thus it is a cross-sectional study.

The researcher uses the survey strategy and selects the sample based on the simple random sampling technique with the sampling frame of 250 executive-level employees and data was collected from a sample of 156 employees based on Krejcie and Morgan's (1970) minimum sample size table.

The researcher used the English version of this questionnaire since the target group knew it. The questionnaire consists of three parts. Part A consists of demographic details (Age, Gender, Marital status, Whether the WFH experience or not), and part B consists of a measurement scale to measure independent variables (Communication, Supervisor support, Perceived organizational support, and work-family conflicts). Part C consists of the measurement scale to measure the dependent variable of work engagement with its three dimensions of vigor, dedication and absorption.

Work engagement measured by using the Utrecht work engagement scale developed by Schaufeli et al. (2002). Supervisor support measure by using 4-item scale developed by Rhoades et al. (2001). Employee communication measure using the 6-item scale developed by Institute for Employment Studies (IES) (2003). Perceived organizational support measured by using the 8-item scale developed by Eisenberger et al, (1997). Work-to-family conflict and family-to-work conflict measure using 10 item scale developed by Netemeyer et al. (1996).

3.1. Construct Validity, Reliability and Normality

As per the above table, all the variables' AVE values are higher than 0.5, and it can be concluded that all the measurement scales are validated. Not only that, but also, if the CR values of the above variables are greater than 0.7, then it can be further concluded that all the measurement scales are validated.

The Cronbach alpha value of all five measurement scales is more than 0.7. We can conclude that measurement scales are reliable, and since they exceed 0.9, it can be concluded that reliability is excellent.

3.1.1. Validity through AVE and CR values

Table 2: Validity through AVE and CR values

Dimensions	Average variance extracted (AVE)	Composite Reliability (CR)
WE	0.62	0.96
PSS	0.82	0.93
POS	0.63	0.83
COMMUNICATION	0.73	0.94
WFC	0.68	0.95

Source: (Survey on work engagement of executive level employees working in large scale Apparel manufacturing companies in Western Province, Sri Lanka, 2021)

The researcher used Skewness's and Kurtosis's values to prove the normality assumption. Since the Skewness (1.33) and Kurtosis (0.270) values lie between -2 and +2, it can be concluded that the work engagement data set follows the normal distribution. Also, since the sample size of the data set is more than 30, it can be further concluded that the dependent variable of the data set becomes normal. Since the parametric normality assumption is not violated, the researcher carried out the correlation and normality test.

3.1.2. Correlation Analysis

There is a moderate degree of positive correlation between work engagement and PSS since the Pearson correlation value is 0.743, and it lies between 0.5 and 0.75. Also, they have a moderate degree of a positive relationship between work engagement and POS since the Pearson correlation value is 0.670 and lies between 0.5 and 0. 75. There is a moderate positive correlation between work engagement and Communication since the Pearson value is also 0.670. It lies between 0.5 and 0.75. Then, in between work engagement and WFC, there is a low degree of negative correlation since the Pearson correlation value is -0.492, it lies between -0.5 to 0.

3.1.3. Adjusted R Square (R²)

The way of assessing the goodness of fit of the model is R-squared. In addition to that, the coefficient of determination can check the accuracy of future forecasts (Saunders et al., 2009). When R^2 is above 75%, it is a goodly fitted model, and when the R^2 is lies between 75%-50%, it is an averagely fitted model and when it below 50%, it considers a poorly fitted model

Table 3: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	0.774	0.599	0.591	0.85026

Source: (Survey on work engagement of executive level employees working in large scale Apparel manufacturing companies in Western Province, Sri Lanka, 2021)

As per Table 4.6 above, the independent variables of the study (PSS, POS, and Communication) can explain the 59% variations in the dependent variable of Work Engagement, and it is considered as the averagely fitted model. Only 41% of variations are explained by other variables the researcher has not tested.

See Appendix- I

3.1.4. ANOVA Table

The P-value of the ANOVA table is used to determine whether the fitted models are significant or not. That means whether or not the independent variables are impacted by the dependent variable (Field, 2009). When the P-value of the ANOVA table is less than the critical P-value of 0.05, there is enough evidence to reject Ho (The fitted model is not significant), and it can be further concluded that it is significant.

Table 4: ANOVA Table

Model	Sum of Squares	Df	Mean square	F	Sig
Regression	163.554	3	54.518	75.412	0.000
Residual	109.887	152	.723		

Total	273.441	155			

Source: (Survey on work engagement of executive level employees working in large scale Apparel manufacturing companies in Western Province, Sri Lanka, 2021)

H_1: The fitted model is significant.
As per the above Table 4.7, the P-value of the ANOVA table (0.000) is less than the critical P-value of 0.05. Hence, enough evidence exists to reject H_0 (H_0: Fitted model is insignificant). Therefore, with a 95% confidence level, it can be concluded that the fitted model is significant.

3.1.5. Multicollinearity

VIF values of independent variables are less than 10, it can be concluded that there is no interrelationship between independent variables of the study.

3.1.6. Result of Hypotheses Testing

Table 5: Result of Hypotheses Testing

Hypotheses	H_1-H_4	Beta value	P value	T–-statistic value	Accepted/ Rejected
Perceived supervisor support impact on gaining work engagement f	H_1	0.356	0.000		Accepted
Perceived organizational support impact on gaining work engagement	H_2	0.166	0.04		Accepted
Communication to gain work engagement	H_3	0.264	0.008		Accepted
WFC impacts to gaining work engagement	H_4	-0.055	0.396		Rejected

Source: (Survey on work engagement of executive level employees working in large scale Apparel manufacturing companies in Western Province, Sri Lanka, 2021)

3.1.7. Fitted Regression Equation

According to the result of the regression analysis, the researcher developed the regression equation as follows.

$Y_E = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_0$

Y_E = Work engagement of Executive level employees

β_0 = Intercept

X_1 = PSS

X_2 = POS

X_3 = Communication

E_0 = Error

$$0.640 + 0.356\ X_1 + 0.166\ X_2 + 0.264\ X_3 + e_0 = Y$$
(Employee Work Engagement)

4.Discussion

Based on the above hypotheses testing, the researcher carried out the regression analysis to arrive at the results. As final findings, they represent favorable outcomes.

Previous researchers argue that Supervisory support is an essential predictor of work engagement (McDonald (2016); Khattak et al., (2017); Ram & Prabakar (2011); Holland et al., 2016). When supervisors provide a more supportive work environment, it creates a more satisfied workforce (Jose & Mampilly; Laschinger

et al., as cited in Holland et al., 2016). It also resulted in increasing the employee capabilities through good communication and feedback from supervisors.

Dai and Qin (2016) indicate that organizational support is the strongest predictor of employee engagement, and when employees receive support from their organization, their sense of belonging to the organization is increased, and employees always try to achieve organizational goals and finally, they are indicating high employee engagement. The results of Imran et al. 2020 research paper stated that POS directly and indirectly enhances work engagement through thriving and flourishing. Also, Sunarjo et al. (2020) stated that when employees receive support from their organization, they have a good perception of the organization, which ultimately results in a high engagement level.

Previous researchers stated that employee communication is the strongest predictor of gaining engagement from employees (Kang & Sun, 2017; Nasima & Shalini, 2018; Krishnan & Wesley, 2013). Siddiqui and Sahar (2019), Welch & Jackson; Lockwood as cited in Markos and Gossaye (2021), indicate that consistent and honest communication is the strongest predictor of work engagement and employee communication plays important vital role in making good relationships with employees, ultimately this relationship helps to enhance employee engagement.

 De Simone et al.; Karatepe and Karadas, cited in Mayuran and Kailasapathi (2020) revealed a negative relationship between family to work conflict and employee engagement. When an employee's family issues spill over the work activities, it wastes time at work due to a lack of concentration on the job (Perry, as cited in Soomro et al., 2018). Also, family-to-work spillover leads to high stress for employees due to family matters (Crouter, as cited in Soomro et al., 2018). Therefore, both these spillovers lead to high stress levels for employees, negatively impacting employee performance and burnout (Soomro et al., 2018). Therefore, previous researchers argue that WFC significantly negatively impacts work engagement.

However, the results of the present study reveal that WFC did not significantly impact work engagement in Sri Lanka. This result is also similar to the findings of the Sri Lankan study of Mayuran and Kailasapathi (2020). Mayuran and Kailasapathi's research paper (2020) also reveals that the results of their study did not support the negative impact of family-work conflict on work engagement in Sri Lanka.

5.Conclusion

The present study's primary aim is to determine the determinants affecting the work engagement of executive-level employees who work in Apparel manufacturing companies in Sri Lanka. As per the results of the study, Perceived Supervisor Support, Perceived Organizational Support, and Communication had a significant positive impact on Work Engagement. Also, the results of the study reveal that Work-Family Conflicts do not have any impact on the Work engagement of Executive level employees working in Apparel manufacturing companies in Sri Lanka.

The researcher carried out the present study in the light of the social exchange perspective, and contributed new knowledge on how selected variables impact work engagement in Apparel Industry in Sri Lanka.

The present study also reveals that supervisor support is a significant predictor of work engagement, and the past researchers, when supervisors provide more and more support, it, creates a more and more satisfied workforce and ultimately it leads to creating an engaged workforce. Therefore, it is essential to build strategies to create good supervisor-employee relationships and motivate supervisors to give maximum support to their employees. According to the results of the present study, Perceived organizational support is the second strongest predictor of work engagement among the proposed variables. Therefore, when creating the strategies to gain work engagement, managers should making. They gives priority to make strategies to feel to the employees that they are not neglected, and they have all the support from organization they want.

As mentioned by the previous researchers, communication significantly impacts engaging employees in the organization. Because an employee's understanding about the strategies, programs, and systems are essential for gaining engagement, good communication between employer and employee is essential. Therefore, as mentioned by the previous researchers and the results of the present study, it can be concluded that communication is a significant predictor of Work engagement. Therefore, it is important to build strategies to improve communication between the organization and employees and among the employees. Organizations can build platforms to efficiently connect with the employees, which can efficiently distribute the information about the organizations and quickly obtain the information which comes from the employees.

Then, the results of the study mentioned that work-family conflicts are not crucial for gaining Work engagement from the employees. Therefore, final, we

can conclude that to increase the engagement level, employees' families and outsider parties are not important and all the efforts should be create by the organization.

Future researchers can give attention to studying other factors that have been mentioned by previous researchers, such as leadership, Training and development, Career Guidance, Financial benefits, and Trust, etc. Future researchers can give more attention to obtaining a more representative sample to make more accurate conclusions. Also, the present study was conducted to find factors that affect gain work engagement only from the executive level. Therefore, future researchers can take other employees, such as operational level workers and managerial level employees, because they give a massive contribution to the company's productivity.

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FACTORS AFFECTING ON EMPLOYEE RETENTION AMONG IT SECTOR WORKERS IN SRI LANKA

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Abstract

The Information Technology (IT) sector in Sri Lanka has been growing rapidly in recent years. However, employee retention in this sector has become a significant concern. The high turnover rate in the IT sector can lead to a lack of experienced workers, increased recruitment and training costs, and thereby a decrease in productivity. This research scrutinizes the factors that impact employee retention in Sri Lanka's IT sector. The study centers on three independent variables: selection and recruitment, employee motivation, and training and development, aiming to discern their collective influence on the dependent variable of employee retention. Employing a deductive research approach, the study forges a theoretical framework grounded in existing theories and supported by relevant literature. This quantitative research study disseminated a structured questionnaire among 384 IT sector employees in Sri Lanka under the simple random sampling method. The findings revealed that employee retention is significantly influenced by selection and recruitment, employee motivation, and training and development. Based on the findings, the study emphasized the requirement of developing strategic interventions that foster enhanced retention practices by strengthening selection and recruitment practices, employee motivation, and training and development, propelling the growth and vitality of the IT sector's workforce.

Keywords: IT sector in Sri Lanka, selection and recruitment, training and development, motivation, retention.

1.Introduction

The Information Technology (IT) sector in Sri Lanka has been growing rapidly in recent years, with a focus on software development and business process outsourcing. However, employee retention in this sector has become a significant concern. The high turnover rate in the IT sector can lead to a lack of experienced workers, increased recruitment and training costs, and a decrease in productivity.

Employees are the most important, valuable, and productive asset of an organization, and retaining them is one of the toughest challenges for managers. It is necessary to establish a completely integrated retention policy to address this issue since the replacement cost of key staff entails a high turnover rate. During the past two years, there have been several strikes and rallies in Sri Lanka, which were organized by labor groups and trade unions either asking to absorb manpower workers to the permanent carder base of organizations or asking to abolish the manpower system from our economy. "Manpower workers" refers to employees that businesses hire internally through labor recruiting firms, often known as Manpower Agencies (Padmasiri, 2017).

Employee retention has become a pressing concern on many grounds. In developing economies, workforce demand is increasing, and talent competition is fierce. It is a new era of modern technology and a competitive business environment. Organizations are continuously changing. This changing environment is not only affecting the organizations but also the employees. To maximize organizational efficiency and optimal utilization of resources, human resources must be managed properly (Nasir, 2016).

The problem of employee retention in the IT sector in Sri Lanka is a significant concern for both employers and employees. Due to the high turnover rate in the industry, there may be a shortage of experienced individuals, higher expenses associated with hiring and training new employees, and decreased productivity. The problem is particularly acute for small and medium-sized enterprises (SMEs) in the sector, which may not have the resources to replace departing employees quickly. Due to the existing competition in the job market in the IT industry, employees tend to hop to jobs quickly in this industry for better opportunities. Furthermore, as the environment related to the IT sector is rapidly changing, the employees and companies are adapting themselves to these continuous advancements by improving their qualifications and experience. If the current place of work is not facilitating these requirements through training and development, employees who work in such environments are not staying for long. Further, the lack of motivation resulting to higher work stress, which has controlled their work-life balance, can become another source of employee turnover.

The objective of this study is to critically analyze the various works done in the field of manpower employee retention and highlight factors responsible for employee departure and retention initiatives followed to retain them (Singh, 2019).

This study's findings will benefit Sri Lanka's IT sector by identifying factors affecting employee retention, helping employers develop strategies, providing job satisfaction insights, and enabling policymakers to support the sector, ultimately improving retention and cost reduction.

The research focuses on employee retention in the IT sector of Sri Lanka, examining factors affecting the sector from 2018 to 2023, with results and recommendations applicable only to Sri Lankan IT companies.

1.1. Research Questions

What is the impact of training and development on employee retention?
What is the impact of employee motivation on employee retention?
What is the impact of selection and recruitment processes on employee retention?

1.1 Objectives of the study

1.1.1 General Objective

To identify the factors affecting employee retention among IT sector workers in Sri Lanka.

1.1.2 Specific Objectives

- To examine whether Training and Development influence employee retention.
- To discover whether the Motivation programs influence employee retention.
- To decide whether the Selection and Recruitment processes influence employee retention.

1.2 Development of Hypothesis

The literature review explores the impact of employee retention on motivation, selection & recruitment, and training & development, with hypotheses developed to measure these variables.

1.2.1 Alternative Hypothesis

H_1 - There is a significant impact of employee selection & recruitment on employee retention.
H_2 - There is a significant impact of employee motivation on employee retention.
H_3 - There is a significant impact of employee training and development on employee retention.

1.2.2 Null Hypothesis

H_1 - There is no significant impact of employee selection & recruitment on employee retention.
H_2 - There is no significant impact of employee motivation on employee retention.
H_3 -There is no significant impact of employee training and development on employee retention.

2. Literature Review

This literature review explores the factors affecting employee retention in the IT sector, specifically in Sri Lanka, highlighting the importance of recruitment and selection, employee motivation, and training and development by relating theories such as Herzberg's Two Factor Theory of Motivation and other supportive literature.

2.1. Employee Retention

In today's competitive era, manpower has become a crucial and one of the most powerful tools for organizational growth and sustainability. The sustainability of any organization depends on the retention of employees. The biggest hurdle that employers in organizations are confronting today is not only the management of human resources but also the need to satisfy and retain them continuously, which is a challenge (Baruh & Bidisha, 2013). Retention means the organization's capability to keep its employees working and continuing in the organization for a long period of time (Anikw, 2016). Employee retention presents many challenges for companies. The lack of a trained workforce results in expensive replacement costs, additional training needs, and detrimental impacts on learning and experience. (Alias, 2017).

2.2.   Selection

Choosing the appropriate personnel for the proper jobs is the process of employee selection. It is a process for aligning organizational needs with people's abilities and credentials. Only when there is effective matching can selection be done. Selecting the best candidate for the required job (Juneja, 2015).

Employee selection is the procedure of interviewing, assessing, and choosing one candidate for employment based on specified requirements, including qualifications, abilities, and experience. Employee selection can range from a very simple process to a highly complicated one depending on the firm hiring and the position (Jhan, 2020). Also, this is a part of the recruitment process concerned with deciding which applicants or candidates should be appointed to jobs (Karemu, Kahara, & Josee, 2014).

2.3.   Recruitment

Recruitment is the process of finding candidates, reviewing applicant credentials, screening potential employees, and selecting employees for an organization (Karemu, Kahara, & Josee, 2014). Effective recruitment results in an organization hiring employees who are skilled, experienced, and good fit with your corporate culture (Heathfield, 2019). An organization-specific sourcing strategy that seeks to identify the best candidate for the appropriate position at the right time is the foundation of an effective recruiting process. It is a step-by-step approach to bringing in talented people who can help the company grow. Finding and enticing suitable candidates to fill open jobs within a company is the process of recruitment (Wood, 2019).

Competencies are utilized in many aspects of human resource management, including hiring, training, performance evaluation, and strategic planning. The traditional recruiting process was based on hiring people who could perform a set of tasks, and HR specialists were focused on technical knowledge (Skorkova, 2016).

2.4.   Motivation

States that people resign from organizations due to job-related stresses, lack of commitment to the organization, and job dissatisfaction make employees quit. Employees can be dissatisfied with the organization for many reasons, such as compensation, job security, job satisfaction, promotion, relationship with superiors and other colleagues, etc. (Mathew, 2012).

Herzberg Two Factors Theory (1961) Herzberg mentions two factors that determine motivation, namely motivational factors and hygiene factors. The

main concept of this theory is the difference between motivation and hygiene factors. Motivational factors are seen to be more essential to job satisfaction than hygiene factors. Hygiene factors are related to 'the need to avoid annoyance'. Motivation factors lead to job satisfaction because of 'the need of the individual for self-growth and self-actualization (Alshmemri & Maude, 2017).

2.5.   Training and development

Training is concerned with preparing individuals for their current positions, whereas development is concerned with getting them ready for future roles and responsibilities. It does an analysis showing that the training and development's goal is to support innovative learning organizations that ensure people can do their jobs well by adding value, gaining competitive advantage and seeking self-growth. This measurable performance, resulting from good training and development, shall enhance organization development. Training and development is the field concerned with organizational activity with the goal of improving individual and group performance in organizational settings and achieve the organization's goals. It is a combined role often called human resources development meaning the development of "Human" resources to remain competitive in the marketplace in achieving objectives (Hammond & Churchill, 2018).

3.   Methodology

The research is positive as the conclusion is based on a factual outcome. Generally, this positivist research is conducted to find out the thinking patterns of people, thoughts of minds, and ideas by using proper questionnaires.
Explanatory research design has been used in the study to explain the relationship among recruitment and selection, employee motivation, training and development and employee retention while achieving the research objectives through hypothesis testing accordingly. The simple random sampling method has been used to collect both primary sources and secondary data from the respondents.
The conceptual framework developed based on the literature review, consists of three (03) independent variables, namely selection and recruitment, employee motivation, and training and development, on the impact made on employee retention, the dependent variable

3.1. Conceptual Framework

Figure 1: Conceptual Framework
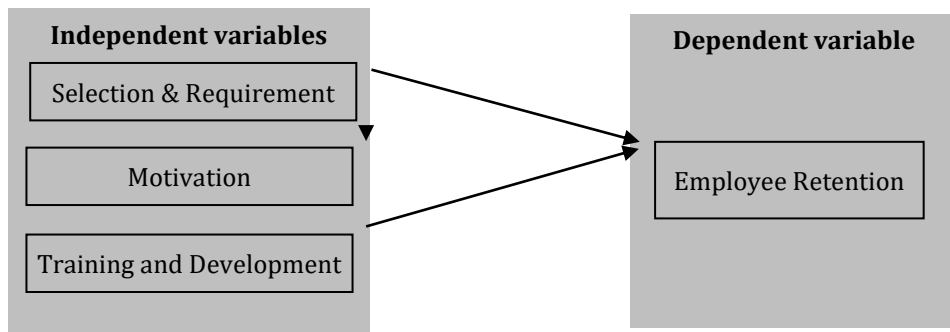
Source: Developed by the researcher based on the Hosain (2016)

The target population of the study was IT sector workers in Sri Lanka who had been working in their current position for at least one year. The size of the target population was estimated to be around 120,000 (Sri Lanka Export Development Board, 2022) and the sample of 384 IT sector workers was determined using the Krejcie and Morgan table (1970).

In this study, validity and reliability were used to measure the validity of the instrument. The researchers have utilized quantitative analysis techniques such as descriptive statistics, correlation analysis, regression analysis, and factor analysis.

4.   Data Analysis and Discussion

4.1.   Reliability Analysis

Table 1: Reliability analysis

Reliability Test			
Variable	No. of items	Cronbach alpha value	Result
Selection & Recruitment	5	0.944	Reliable
Motivation	5	0.964	Reliable
Training & Development	5	0.982	Reliable
Employee Retention	5	0.932	Reliable

Source: Output of Data Analysis

According to the table, the Cronbach Alpha value of all the variables is greater than 0.7. It means the items used to measure variables are Consistent & reliable.

Table 2: Validity test

Validity test				
Variable	No. of items	KMO value	Bartlett's significant value	Result
Selection & Recruitment	5	0.845	0	valid
Motivation	5	0.802	0	valid
Training & Development	5	0.827	0	valid
Employee Retention	5	0.727	0	valid

Source: Output of Data Analysis

According to the table, the KMO value of all the variables is greater than 0.5 & Bartlett's values are below 0.05. It means the items used to measure variables are Valid.
The sample of respondents consists of 74% males and 26% females. Therefore, the highest respondent rate represents male respondents. The age distributions of the respondents were categorized into four different age categories. Among

them, the majority of the respondents were from the category of age between 21-30, and the percentage represented 92% and the age of 31-40 respondents was 2%. Moreover, respondents between 41-50 represented 6%, and 0.5% of respondents were below the age of 20. Regarding marital status, 74% of the sample was unmarried, 22% was married, and 4% was divorced. With reference to the monthly income, the majority of the sample represents the income range of Rs. 30,000-Rs. 40,000 with 35% of the sample, and the income range of more than Rs. 50,000 represents 33% of the entire sample. Regarding the years of experience, 36% of the majority represented 3-4 years of experience, while another 35% represented 1-2 years of work experience, and 26% of the sample represented more than 5 years of work experience.

4.2. Coefficient table

Table 3: Coefficient table

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	5.233	.328		15.956	.000
SRETOTAL	-.198	.056	-.221	-3.509	.001
MERTOTAL	.139	.049	.162	2.821	.005
TDETOTAL	.797	.054	.992	14.829	.000

Source: Output of Data Analysis

Since the p-value is less than 0.05, the null hypothesis, which states that employee selection and recruitment have no significant effect on employee retention among IT sector workers in Sri Lanka, is rejected. The alternative hypothesis, which states that employee selection and recruitment have a significant effect on employee retention in Sri Lanka among IT sector workers in Sri Lanka, is accepted. Past studies (Miheso et al., 2019; Ahsan, 2018; Karen et al., 2014) emphasized the positive and significant effect of recruitment strategies on employee retention and that employee retention is shaped because of succession planning made for selection and recruitment by retaining the potential talent of the company and they ultimately help themselves to take their performance one step ahead.

With reference to the coefficient value of employee motivation, as the p-value is less than 0.05, the null hypothesis, which states that employee motivation has no significant effect on employee retention among IT sector workers in Sri Lanka, is rejected, and the alternative hypothesis, which states that employee motivation has a significant effect on employee retention in Sri Lanka among IT sector workers in Sri Lanka, is accepted. Previous research findings also prove the significant influence of employee motivation on employee retention

(Kaliyamoorthy et al., 2018) by emphasizing five major aspects of motivation: compensation, growth, support, relationship and environment (Sandhya & Kumar, 2011).

The correlation of training and development with employee retention shows a good level of significance with a p-value being 0.000 (less than 0.05), the null hypothesis, which states that training and development had no significant effect on employee retention in the IT sector workers in Sri Lanka, is rejected and the alternative hypothesis, which states that training and development had a significant effect on employee retention in Sri Lanka among IT sector workers in Sri Lanka, is accepted. The same findings have been concluded by various research *(Elsafty & Oraby, 2022)* while some argue that the training and development impact on employee retention by boosting compensation as a mediator is still significant and positive *(Anis, Rehman, Nasir, & Safwan, 2011)*. Accordingly, with reference to all three hypotheses, alternate hypotheses are accepted as follows:

Table 4: Hypothesis Testing Summary

No	Hypothesis	Result
H1	There is a significant impact of employee selection & recruitment on employee retention.	Accepted
H2	There is a significant impact of employee motivation on employee retention.	Accepted
H3	There is a significant impact of training and development on employee retention.	Accepted

Source: Output of Data Analysis

Furthermore, with reference to table 03, the following regression equation can be created using the beta coefficient.

Y (Employee Retention) = 5.233+0.139M+ 0.797TD – 0.198SR + e

The coefficient table indicates which factors managers should focus on strengthening employee retention. Under the Beta (B) column, the highest value goes to training & development, which is 0.797. It means that out of the three factors, training & development is the most influential factor on employee retention. Secondly, the most influential factor for employee retention is motivation, and it's valued at 0.139. Selection and Recruitment influence Employee Retention less than the other two factors, which is valued at -0.198.

The constant value of the coefficient table describes that if all the independent variables are zero or inactive or are not influenced, this can happen because the constant value is positive, which is 5.233.

The researcher confirms the reliability and validity of variables and hypotheses, accepts alternative hypotheses, rejects null hypotheses, and derives research objectives through analysis.

Therefore, it can be concluded that employee motivation and training & development have a positive influence on employee retention.

5. Conclusion

The main attempt of the current study is to examine the impact of three main dimensions, namely selection and recruitment, employee motivation, and training and development, on employee retention. According to the outcome of the study, training and development can be identified as the most influential factor in employee retention of the IT sector in Sri Lanka. Enhancing skills, acquiring knowledge, and advancing careers, leading to increased job satisfaction and loyalty, which will be led under training and development, is highly important for establishing effective employee retention practices in the Sri Lankan IT sector.

To improve training and development, managers should create personalized plans based on individual career goals, foster a continuous learning culture, utilize internal training resources, partner with external providers, provide certification support, conduct regular skill assessments, use blended learning approaches, implement leadership development programs, and link training to employee performance evaluations. Performance-linked training can also be beneficial. Regular skill assessments can identify knowledge gaps and areas for improvement. Implementing leadership development programs and measuring training impact can help organizations create a supportive environment that emphasizes the value of training and development. This approach can lead to improved employee retention and a skilled workforce.

Managers and owners can boost employee motivation and retention by open communication, Employee reward program, Career development programs, Performance based bonuses, Recreation facilities, and Gifts on some occasions (Sandhya & Kumar, 2011). These strategies can create a motivating and engaging work environment, leading to higher employee satisfaction and retention, reducing turnover, and attracting top talent. By implementing these strategies, IT organizations can create a more successful and committed workforce, reducing turnover and attracting top talent.

To improve employee retention in IT, organizations should create clear job descriptions, conduct cultural fit assessments, conduct effective interviews, offer competitive compensation packages, emphasize career growth

opportunities, build a positive employer brand, streamline the onboarding process, encourage feedback from current employees, prioritize diverse and inclusive hiring, and stay connected with new hires. These strategies can lead to a strong, committed workforce, higher productivity, and success for the organization. A well-prepared interview process, competitive compensation packages, and a clear path for career growth can also contribute to employee retention. Additionally, a positive employer brand, a smooth onboarding process, and regular communication with new hires can help retain them in the long term.

5.1. Policy Implications

The study suggests several strategies for organizations. These include effective recruitment practices, recognition programs, personalized retention strategies and training approaches powered by training and development, establishment of a learning culture, external training partnerships, sponsorship and certification support for employees, regular assessment systems, blended learning approaches and leadership development programs. By adopting these recommendations, IT organizations can create a supportive and growth-oriented environment that emphasizes the value of training and development. Employees who feel invested in and supported by their organization are more likely to stay, leading to improved employee retention and a skilled and motivated workforce.

Providing training and development programs is key to employee retention in the IT sector. Organizations should invest in continuous learning initiatives to enhance employees' skills and knowledge. Providing training and development programs is key to employee retention in the IT sector. Organizations should invest in continuous learning initiatives to enhance employees' skills and knowledge. This can include technical training, professional development opportunities, and mentoring programs.

Secondly, the most influential factor for employee retention is motivation and employee empowerment and autonomy in decision making, flexible work arrangement, communicating and convincing a clear vision and purpose, performance-based incentives, promoting collaboration and teamwork, career growth opportunities, employee well-being initiatives by prioritizing employee wellness and celebrating milestones and anniversaries by giving due recognition can foster a motivating work environment, enhancing employee satisfaction and retention, reducing turnover, and attracting top talent.

Creating a motivating work environment is crucial for retaining IT sector workers. Organizations should consider implementing recognition programs and rewards systems and fostering a positive workplace culture. By acknowledging and appreciating employees' efforts, organizations can enhance

their motivation levels and job satisfaction ultimately increasing employee retention. By offering growth opportunities, organizations can demonstrate their commitment to employees' career progression and increase loyalty and retention. Further, the tailored retention strategies that consider the unique characteristics and cultural context of the IT sector in Sri Lanka. Organizations should assess the specific needs and preferences of their employees to design retention initiatives that align with their motivations and aspirations. Understanding the local culture and adapting strategies can also foster a sense of belonging and increase employee retention rates.

Further, organizations should establish channels for open and transparent communication between employees and management. Encouraging employee participation, soliciting their opinions, and acting on their feedback can foster a sense of involvement and engagement, leading to higher retention rates. Industry Collaboration and Benchmarking can also be recommended for organizations in the IT sector to collaborate with industry associations, professional networks, and academic institutions to share best practices and benchmark their retention strategies. Learning from successful approaches and adapting them to their contexts can help organizations stay competitive and enhance employee retention.

Overall, the study's implications for practice emphasize the importance of strategic selection and recruitment, motivation strategies, training and development programs, tailored retention initiatives, effective communication, and industry collaboration. By implementing these practices, organizations in the IT sector in Sri Lanka can improve employee retention rates, enhance employee satisfaction and engagement, and ultimately contribute to their long-term success.

Strategic Selection and Recruitment can be refined by prioritizing effective selection and recruitment practices. This involves identifying candidates with the necessary skills and aligning them with job requirements. By attracting and selecting the right individuals from the beginning, organizations can increase the likelihood of employee retention in the long run.

Selection and Recruitment influence employee retention, which is also significant; however, it provides a negative correlation with the dependent variable. For the negatively valued correlation between selection and recruitment, conducting further research can be recommended.

Implementing these recommendations can enhance IT organizations' workforce retention, productivity, and success by strategically recruiting and selecting employees.

5.2.   Implications of Academia

The study has several implications for academia, particularly in the field of human resource management and organizational behavior. The findings contribute to the existing body of knowledge and provide a foundation for further research and exploration.

Theoretical Advancement: This study adds to the theoretical understanding of employee retention by examining the specific factors of selection and recruitment, motivation, training, and development within the IT sector in Sri Lanka. Academics can build upon this research by exploring additional variables or investigating the impact of these factors in different industries or countries. The findings can enrich existing theories and frameworks related to employee retention.

Practical Application: The study's findings have practical implications for academia in terms of informing the development of effective retention strategies in the IT sector. Academics can collaborate with industry professionals and organizations to translate the research findings into actionable recommendations. This can involve designing training programs, recruitment practices, and motivation strategies tailored to the IT sector in Sri Lanka or similar contexts.

Curriculum Development: The study provides insights that can be integrated into academic curricula, particularly in human resource management and organizational behavior courses. Educators can incorporate the research findings into their teaching materials to enhance students' understanding of the factors influencing employee retention. This can promote critical thinking and stimulate discussions on practical applications within IT and other industries.

Future Research Opportunities: The study opens avenues for further research within academia. Researchers can explore related topics, such as the impact of leadership styles, work-life balance, or organizational culture on employee retention in the IT sector. Additionally, comparative studies across Different countries or sectors can provide a broader understanding of the factors influencing employee retention and contribute to the global knowledge base.

Methodological Considerations: The study's methodology and data collection techniques can be a reference for future researchers. Academics can evaluate the effectiveness of the chosen research design and suggest improvements or alternative approaches. This can contribute to methodological advancements in studying employee retention and encourage using mixed-methods or qualitative research approaches to complement quantitative findings.

In summary, the study's implications for academia include advancing theoretical knowledge, facilitating practical applications, informing curriculum development, providing opportunities for further research, and promoting

methodological considerations. By considering these implications, academics can continue exploring and contributing to the understanding of employee retention in the IT sector and beyond.

5.3. Future Research Directions

The study aims to understand employee retention factors in Sri Lanka's IT sector through longitudinal, comparative, qualitative, and emerging technologies. Longitudinal studies can provide insights into factors affecting employee retention in the IT sector over time, identifying stability and variability. Comparative studies across different sectors or countries can identify unique factors and variations in importance. Qualitative research, such as interviews or focus groups, can provide deeper insights into employees' experiences and motivations. Future research could explore the influence of emerging technologies on employee retention, such as artificial intelligence and blockchain, and evaluate the effectiveness of organizational interventions like flexible work arrangements and mentoring programs. By addressing these limitations and exploring future research directions, scholars can advance their understanding of factors affecting employee retention in the IT sector in Sri Lanka and provide practical insights for organizations to enhance their retention strategies.

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TRACK V - MARKETING

SMEs UTILIZATION OF MARKETING INFORMATION SYSTEMS (MKIS) FOR CASE STUDIES IN DAR ES SALAAM, TANZANIA: A THEORETICAL REVIEW

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Abstract

SMEs operate in a globally competitive and turbulent environment. This has led to high closure rates for an important sector that employs many workers. MKIS facilitates decision-making and responses for businesses. Utilizing MKIS can provide critical marketing information on products, markets, and customers, enabling SMEs to survive better. Previous MKIS studies have revealed benefits in increased knowledge, business performance prediction, better products and services. This paper examines theories and models that determine the utilization of an SME MKIS. In an exploratory design, the study uses desk research methodology to review the literature on MKIS utilization by SMEs. The overall study purpose is to examine the literature on SME MKIS utilization to answer three research questions on existing theories and empirical studies on MKIS, models and research design. Key findings are that the leading theories identified are diffusion of innovation (DIT) and unified acceptance and use of technology (UTUAT). A model data bank of three theoretical and three empirical MKIS models are reviewed and presented. The role of MKIS in business, MKIS types, its drivers, and features are discussed. Finally, the paper presents study implications for the working proposition, research questions, and an analysis model.

Keywords: MKIS, SMEs**,** utilization.

1. Introduction

Small and Medium Enterprises (SMEs) contribute to economies in both developed and developing countries. The low survival rate of SMEs in a global competitive environment is a major challenge (Dai et al, 2021; Elly, 2010). This situation is attributed to factors such as low adoption of innovation strategies in production and marketing. Further, lack of suitable or adopted technology constraints SME growth, with inferior technology utilization a critical challenge (Prasanna et al. et al., 2019). SMEs employ 5 to 100 employees (Nyamanza, 2021; MoT-URT, 2003). The study domain is using the acceptance and use of Information Systems (IS) (Raj, 2017). Information resources are utilized in business functions, while Marketing Information Systems (MKIS) are processes that support marketing functions at the operational level. MKIS utilization refers to persons with marketing responsibility, who regularly using the technology. MKIS technology offers benefits such as: facilitating knowledge, customer information, and analysis (Wahyuni & Lestaria, 2020); significantly and positively predicting service quality (Berhani & Kitawil, 2012); providing better performance, products/services and global market reach for competitiveness (Elly, 2010). A Tanzanian baseline survey of MSMEs (MoT-URT & FSDT, 2012) determined a need for more information on marketing, such as available/good markets and the nature of competition among small businesses. These are cited as specific reasons for SME closure.

The problem and rationale for this study are identified gaps that require a literature review. There needs to be more studies to guide the implementation of MKIS and derive benefits. A knowledge gap functional exists in determining what MKIS model SMEs can use to achieve functional marketing benefits. The research gap is a qualitative study required to determine SME MKIS model descriptors, as most studies are quantitative. An adapted MKIS is required as studies reveal variable MKIS models, information sources, and quality. This paper presents the introductory Chapter One, utilizing desk research in a systematic literature review. The study purpose is to give literature reviewed on research and knowledge gaps identified, with the following research questions raised:

Research question 1 (RQ1): What are SMEs' main theories and studies on MKIS utilization?

Research question 2 (RQ2): What MKIS model are SMEs utilizing.?

Research question 3 (RQ3): What research design can guide the implementation of MKIS for SMEs?

The study's significance is the review of theories, and MKIS models will establish a solid foundation for an identified research design. This adds rigor and objectivity to the case study methodology for the PhD study. The literature

reviewed is also an important confirmatory step in establishing acceptance and utilization of MKIS. For research design, development and justification of the selected descriptive design with comparative case studies is possible. These study elements will ensure a successful research study and thesis, ultimately resolving the of the SME closure problem by utilizing MKIS.

2. Literature Review

2.1. RQ1: Theories and Studies on MKIS

Due to rapid technological changes, organizational research has increased to understand better and utilize technology beneficially (Gualberto, 2017). MKIS and its utilization are underpinned by technology adoption models (TAMs), information systems models, and theory. Two complementary theories are considered. First, Diffusion of Technology (DIT) by Rogers (1995) on early-stage technology adoption from markets into organizations. This is required to prove MKIS technology is in-market and has been adopted. Thereafter, the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh, Morris, Davies and Davies (2003) on later-stage acceptance and use demonstrates MKIS utilization. For study purposes, adoption is a prerequisite for utilization.

2.1.1. Diffusion of Innovation (DIT) Theory

DIT is further elaborated in the marketing context as the Innovation (Consumer) Adoption Process. The communication process leading to the adoption of technology has six stages - awareness, interest, evaluation stage, trial and full and regular use (Kotler, 2000). Further, buyers are organized into five conceptual categories innovators 2.5%, early adopters 13.5%, early majority 34%, late majority 34% and laggards 16% (Kotler, 2000). For the study, SMEs are considered an early majority due to numbers and likelihood to adopt. Buttery and Tamashki (1996), in an SME study in Queensland, Australia, as reviewed by Rosario (2021), determined MKIS was recognized as valuable, but little was done to develop and use it. In Indonesia, MKIS utilization in Customer Relationship Management (CRM) is a new and innovative business practice – generally a trend to follow (Wahyuni & Lestari, 2020). In the African market, research in Ethiopia examined large companies in various sectors (Berhani & Kitawil, 2012). MKIS as a technology has been accepted and used in large firms, documented in the USA in three Fortune 500 studies (Basandra, 1999). Study results were, at first an increase in the use of computerized elements (Li, 1995), then a decline in overall MKIS utilization. German SMEs received support to encourage innovation, including technology (ZIM, 2012). Mwashuiya and Mbamba (2019) model TAM and DIT to determine the importance of acceptance of technology and usefulness in ICT adoption for

operational efficiency. This review on TAMs addresses issues of MKIS innovation status, its development and use. As MKIS's status as an innovation is established, further questions are on SMEs following the trend and MKIS components being used.

2.1.2. UTUAT Theory

UTAUT has four predictors of user behavioral intentions; performance expectancy (PE), effort expectancy, social influence and facilitating conditions. PE has five similar constructs of perceived usefulness, extrinsic motivation, job-fit, relative advantage and outcome expectations (Gualberto, 2017). PE is examined by Berhani and Kitawil (2012) with MKIS predicting business outcomes in certain functions, specifically service quality. In Vietnam, Le et al (2020) industrialization that effective SME utilization management information systems (MIS) is determined by the quality of the information provided. Overall, UTAUT supports the proposition that performance criteria can predict utilization of technology. Gharibi's (2020) review of predictive models, specifically TAM 1, 2, 3 and UTAUT for tourism, indicates utilization of technology studies is important. This review of UTUAT raises questions about MKIS functional applications and information requirements. Also, indicative is what MKIS can be utilized by SMEs as a sector.

2.1.3. Information Systems (IS) Theory and MKIS Models

The Delone and McLean IS Success Model (D & M), developed by William H. Delone and Ephraim R. McLean in 1992 and updated in 2003, defines and evaluates information systems (Delone & McLean, 2003). The original model has six IS success construct measures: systems and information quality, use, user satisfaction, and individual and organizational impact. The updated version includes service quality, intention to use and net benefits (Urbach & Müller, 2011). A survey of Greek hotels by Chazipanagiotou and Corticos (2010), reviewed by Rosario (2021), determined information success factors within firms and reasons for MKIS selection. These were the degree of marketing orientation adoption, systems quality, quality of information outputs and support services quality. MKIS utilization in strategy and practice is examined by Xu (1999) reviewed by Rosario (2021), determining that although strategic marketing is essential, MKIS has not been maintained. Higby & Farah (1991), as reviewed by Rosario (2021), find MKIS is best suited for mid to large firms of 100 employees, with more than USD 100 million in revenue. Midlevel managers used it for customer profile analysis, competitive analysis, market research, project design, pricing decisions and sales forecasting. In Ethiopia, Berhani and Kitawil (2012) determined that information processing positively and significantly predicts service quality and business function. Mlimbila and

Mbamba (2018), in a case study of Dar es Salaam port, utilise D & M model to determine the organizational impact on performance from the utilization of information systems. UTAUT theory can evaluate MKIS components, and the outcome of MKIS utilization should be measurable in positive business performance. This review section raises issues on possible MKIS success factors from SME utilization. Again, what information is required for MKIS and what functional uses exist for an SME MKIS?

2.2. RQ2: SME MKIS model

A model bank with three theoretical models has been reviewed, complimented by three empirical models. The review outcome is an analysis of MKIS models to guide the model the SME MKIS analysis model selection. In narrative summary, Model 1 (Kotler, 2000) is a functional process model focusing on core components. Model 2 (Stair & Reynolds, 1999) has a wider business perspective of enterprise-wide applications. Model 3 (Basandra, 1999) is a simple input/output model focusing on marketing principles – the 4Ps. Such MKIS models have been used in longitudinal surveys of American Fortune 500 companies. Overall, research-based models of MKIS are numerous and categorized according to primary uses such as data gathering, data analysis, planning, decision-making, and implementation of marketing activities (Berhani & Kitawil, 2012). In their study, the MKIS model incorporated dimensions of data acquisition, IT infrastructure, information processing and business function. These were selected from a six-category classification system and adapted to reflect their research purpose (Berhani & Kitawil, 2012). In a review, Rosario (2021) presents studies on MKIS data and information characteristics. Ashill & Jobber (1999 & 2002), as reviewed by Rosario (2021) in two studies, developed and tested information usefulness and system needs. Talvinen and Saarinen (1995) present an operational MKIS for implementing marketing activities. They selected variables of information content, marketing process management, MKIS subsystems in implementing and controlling marketing efforts and perceived improvements in MKIS usage (Talvinen & Saarinen, 1995). From the empirical studies, the study gap is that model development studies that were carried out two decades ago, primarily for large firms. The MKIS study will determine an updated MKIS model that is relevant for SMEs considering these theoretical and research-based models. This section raises issues of a suitable operational model for this study and SMEs in the African market.

2.3 RQ3: Research Design

2.3.1. Research Philosophy

MKIS theory is ontologically established as a working concept through the different component and whole systems studies conducted regularly for large corporations. Empirical studies in MKIS are primarily quantitative (Antwi & Hamza, 2015). in nature, an objective ontology and optimistic epistemology These examine results of MKIS utilization with specific measurements - for businesses what they get from MKIS utilization. However, there are fewer studies on MKIS model development, with qualitative case studies notably different in approaches. These are subjective in ontology and anti-positive in epistemology. Being subjective and idealistic, these indicate what businesses say regarding utilizing MKIS. The main philosophical difference is that empirical studies are predetermined and measurable. A qualitative case study (Antwi & Hamza, 2015) is an interpretive philosophical stance, a new and interesting outlook on MKIS utilization.

This incorporates business views such as performance and information quality, enabling the development of relevant MKIS models. These models incorporate practical utilization, aligning subjective research to deliver higher user engagement and customization for technology purposes. This aligns well with core subjective reality ontological assumptions, with discourse and primary symbolic user. It relates to the fundamental epistemological stance that the study seeks to understand the patterns of symbolic discourse (Antwi & Hamza, 2015).

2.3.2 Research Design

MKIS is present theoretically, with empirical studies (Basandra, 1999; Ashill & Jobber, 2001/2, Talvinen & Saarinen, 1995, Hakhu et al, 2012-3). The study will utilize a deductive, qualitative research approach and is largely interpretive. The descriptive research design evaluates MKIS utilization by collecting data to support/uphold the working hypothesis.

2.3.3 Data Collection and Analysis

Secondary and primary data will be collected using desk research, case studies and organization interviews. In the literature review, an exploratory stage will be collected through review of books, articles, and journals. This will develop the working proposition from an operational point of view (Kothari & Garg, 2014). It is important and considered a simple and fruitful method. The field data collection stage, which is descriptive – will collect data in an internal survey

using in-depth organization interviews. An interview list (Cooper & Schindler, 2000) will be administered, developed from the working proposition and research questions to guide partially. Questions will be both open-ended and closed, with a rating measurement scale.

Data analysis will utilize a logic flow process model to present theoretically predicted components and on application, demonstrate or match these to empirical observations/documentation of the said components (Hollweck, 2016). Data collected during the literature review and in-depth interviews will be analyzed using the working proposition and research questions. Qualitative data analysis will utilize four steps: prepare, code (categories/theme assignment), analyze, report. Specific methods will include conventional content analysis, cross-tabulation, simple descriptive statistics. Data validity will be based on conformance to the MKIS model. The presentation will be a case study narrative, graphic model, graphs, and tables. Quantitative data analysis will utilize simple descriptive statistics, for example, ratings with percentages reported.

3. Methodology/Methods

The research philosophy guiding this paper is pragmatism, using multiple theories strategy. In terms of ontology, this asserts that there is no single real world; rather individual have different interpretations. Concerning epistemology, this postures that - because there is no one best way of knowing reality, both subjective and objective stances are necessary (Antwi & Hamza, 2015). With this in mind, the research methodology involves collecting and reviewing various sources with qualitative narrative content analysis. To answer the three research questions, literature was reviewed from reputable research repositories for scientific journals. Relevant marketing research and marketing and information systems textbooks were also reviewed. The online research repositories and resources included: Google Scholar, Research Gate, Elsiever /ScienceDirect, Wikipedia and University of Dar es Salaam Online Research repositories. The timeline for the search included materials from 1980 to current (2020). The search terms for online and hardcopy materials were adapted to reflect the information sought egg. 'IS theories', 'SMEs' ', MKIS models', 'case studies' etc. These were then reviewed, and relevant content summarized under the six (6) paper sections to answer the three (3) research questions. This has been carried out in the narrative format aof over 60 materials obtained; a total of 42 were retained and comprise the references for this paper.

4. Data Analysis and Results

4.1. RQ1: Theories and Studies on MKIS

Berhani and Kitawil (2012) examine MKIS's impact on Ethiopian firms from multiple sectors and determine quality determine positive and significant service quality prediction. This implies MKIS is an utilize essential technology for SMEs to use for business prediction. Research suggests that low SME survival rates in a, globally competitive environment are attributable to low adoption of innovation strategies in production and marketing functions. Further, the lack of suitable or adopted technology constraints SME growth, with a low level of utilization of technology, are critical challenges (Prasanna et al., 2019). In China, a study in the SME sector, due to its importance in employment, demonstrates the importance of information systems for SMEs in an increasingly turbulent global environment. This can be generalized for developing countries' SMEs to cope with severe economic challenges (for example) as caused by the COVID pandemic and resulting business closures (Dai et al., 2021). Le et al. (2020) in Vietnam determined that (2020) in Vietnam determined MIS effectiveness in improved business performance. Lipac and Davidavicieni (2013), in a Lithuanian study, indicate reasons for utilizing integrated information systems as businesses seek to improve their economic results, productivity, efficiency, reduce costs and other benefits. The systems are seen to improve internal business processes and financial performance.

In Tanzania, information technology (IT) infrastructure and supporting services guarantee better performance, enable firms offer better products and services and reach global markets for competitiveness (Elly, 2010). SMEs indicate some critical information needs, identified as priorities – rated second and third are information on markets and customer's products - accounting for 23% of priority information (MoT-URT and FSDT, 2012). Further thoughts are on the value of predictive models for the future, mostly in facilitating marketing decision-making (Gharibi, 2020). This review section raises questions on how MKIS can be utilized for business prediction and responding questions to business closures and turbulence in global environments. Further, and repeatedly - what specific information is required for MKIS?

4.2. RQ2: MKIS models

Three theoretical models are reviewed. Model 1 has four components: an internal records system for order processing and sales; marketing intelligence system that collects information using procedures and sources; a marketing research system that collects, analyses and uses data/information for marketing problems; and a marketing decision support system enable managerial

decisions (Kotler, 2000). Model 2 has a Marketing Management Information System (MIS) supporting managerial activities in product development, distribution, pricing decisions, promotional effectiveness and sales forecasting. It has inputs from internal sources, e.g., strategic plans and external sources, e.g., journals, customers, etc. At the centre is a transaction processing system with sales and marketing data on products, customers and sales force. External data sources include competitors and markets. Outputs are reports on sales, customers and service (Stair & Reynolds, 1999). In Model 3, the technology-based MKIS approach is a simple logical flow model with inputs and outputs, a central database with end-user interaction based on marketing principles (Basandra, 1999).

In terms of the role of MKIS and the types of companies utilizing MKIS, Rosario (2021) provides research-based MKIS guidelines for decision-making and environmental responses. MKIS is used by large firms and SMEs in different sectors. Basandra (1999) documents utilization of MKIS in large and prominent US-based companies, the Fortune 500 companies, during the 1980s and 1990s. Recent studies indicate utilization of MKIS in service sectors such as global tourism (Gournaris et al, 2007; Rosario, 2021); multiple industry sectors (Berhani & Kitawil, 2012); financial services (Kumar & Katyayani, 2014); the manufacturing sector (Hakhu et al. et al., 2012/3).

The main drivers for MKIS utilization in technology optimization (Rosario, 2021) are for information collection (Heinen, 1999), to development of better customer databases (Rowley, 1999), the creation of higher visual content for more sustained product involvement (Vasquez, 2019); as an inter-organizational system (IOS) by to reduce costs, increasing business networks Watson and (McKoewn, 1999); for knowledge acquisition by reducing restrictions on price, marketing strategies, internal communications and distribution channels (McIntyre & Sutherland, 2002).

MKIS features (also referred to as study variables) used in impact assessments are systems quality, information quality, support service quality, compatibility and flexibility (Kumar & Katyayani, 2014; Ashill & Jobber, 2002). These are financial sector metrics with specific definition task definitions required to guide MKIS utilization. Hakhu, Kiran and Goyal (2012/3) determine predictors of MKIS features for successful utilization MKIS sophistication, design characteristics, capabilities and primary characteristics. MKIS-specific component features and performance are presented by Rosario (2021). Li et al. (1993) evaluates information source importance rating that lists data processing, marketing research, and intelligence components. Further, Li (1995) noted a decline in mathematical modelling component while computerized aspects for storage, retrieval and processing increased. Internal accounting was

widespread, with marketing research and intelligence components rated equally (Rosario, 2021). In a third study, Li et al. (1999) developed guidelines for developing a Marketing Intelligence System. This component is a focus for Lackman & all (2000) and Britannia, 2002), as summarized by Rosario (2021). These studies indicate variable models used to evaluate MKIS. This review section poses questions such as what MKIS SMEs in an African context can use. Further, what are the functional marketing tasks an MKIS can address? A critical issue is what are the primary characteristics of an SME MKIS?

4.3. RQ3: Research Design

A case study is an empirical enquiry investigating a contemporary phenomenon in depth and within its real-world context. It is frequently used in business and, therefore, suitable for SMEs. The process includes a case study plan, design, preparation, data collection, analysis, and reporting (Hollweck, 2016). High-quality case studies can provide rigour, validity, and reliability with multiple qualitative and quantitative applications, e.g., by use of logic flow models (Hollweck, 2016) from model databases with logical flow process models Kotler (1987). The rigor of case studies enables usage as a primary method for evaluating exploratory data. However, the evaluation situation and the evaluator skills and experience are also important. (Hollweck, 2016).

5. Discussion of the Findings

5.1. RQ1 MKIS Theories and Empirical Studies

Based on this literature review, the study assumptions are:
Assumption 1: Utilization of SME MKIS may over a predetermined time, result in improved positive business prediction.
Assumption 2: Utilization of SME MKIS is likely to be more effective with quality information collected.
Assumption 3: Utilization of SME MKIS is likely to be more effective with a quality functional system in place.

The study's working hypothesis/proposition is:
SMEs are utilizing MKIS predicting predict business performance using a functional marketing model. The overall purpose of the study is to determine technology utilization, precisely that of MKIS in SMEs. This is supported in DIT by Rogers in 1995 (Gualberto, 2017). complete. Complete and regular use is anticipated for study purposes as the last stage of technology adoption. Gualberto (2017) presents UTAUT by Venkatesh, Morris, Davies, and Davies (2003), supporting the proposition of SME SMEs utilizing MKIS with performance expectancy, specifically, precise outcome expectations. MKIS role

in SMEs can, therefore predict business performance. MKIS applications in managing customer relationships strengthen MKIS position as a new and innovative business practice – a trend to follow (Wahyuni & Lestari, 2020). Performance expectancy is examined by Berhani and Kitawil (2012) with the ability of MKIS to predict business outcomes, specifically service quality determined.

5.2. MKIS Models

The following are three research questions:
Research question 1 (RQ1): What is SME MKIS requirements for predicting business performance?
UTAUT indicates performance expectancy, precisely outcome expectations, while the D &M IS model looks at organizational impact. For study purposes, these are indicative requirements for an SME MKIS, not predictors.
Empirical research by Berhani and Kitawil (2012) determines the role or impact of MKIS in Ethiopian firms in multiple sectors to positively and significantly predict service quality. Tsai et al. (2011) determined business performance evaluation methods by examining internal processes and financial performance (Lipac & Davidavicieni, 2013). This study will consider SME MKIS requirements in internal process performance and financial performance.
Research question 2 (RQ2): What is SME MKIS information needs?
The D & M IS model states information quality is essential. Kumar and Katyayani (2014) empirically determine that an SME MKIS is well suited for budgeting, product and sales forecasting, analysis, and project management. As marketing activities that describe utilization, these are indicative areas for MKIS functional utilization.
Research question 3 (RQ3): What is SME MKIS functional design factors?
The D & M IS model indicates systems quality is important. Hakhu, Kiran and Goyal (2012/3) determine success factors, namely MKIS sophistication, design characteristics, capabilities and primary characteristics. These will describe MKIS system features for utilization. The study aims to determine an MKIS model that meets SME requirements of a quality system for utilization in a marketing function.

5.3. RQ3: Research Design

Empirical studies using quantitative methods have been useful where MKIS utilization is clear e.g., in large manufacturing and financial service sector organizations (Berhani& Kitawil, 2012; Kumar & Katyayani, 2013). Utilization of MKIS by SMEs as the phenomena under study, is relatively unknown. and is multi-disciplinary, combining information systems, management and marketing. The research design is descriptive, evaluating MKIS utilization by

collecting data to support/uphold the working hypothesis. Case study is an empirical enquiry that will compare two SME, describe similarities and differences of MKIS utilization from two different sectors – services and manufacturing. Current business cases feature large and well-established companies, with fewer SME business cases for an important segment. Data collection methods will include document review and interviews (UDSM Research Agenda, 2018).

6. Conclusion and Policy Implications

The two main theories on MKIS utilization are Technology Adoption Models (TAMs) Diffusion of Innovation (DIT) by Rogers (1995) and the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh, Morris, Davies and Davies (2003). The Delone & McLean Information Systems Success (D & M) model (Delone & McLean, 2003) provides useful success indicators. Empirical studies indicate both MKIS acceptance with full and regular use as a technology. However, studies are predominantly in large companies, with few studies on SMEs. MKIS models exist both theoretically and in empirical studies. These are variable, with different applications and in different sectors. There are few standardized models for SMEs that can be used of MKIS implementation. MKIS research study designs are mostly quantitative surveys. Qualitative case studies on MKIS are few. For the PhD study - a descriptive research design will utilize two comparative case studies on MKIS utilization from two different sectors – services and manufacturing. The following analytical model will be utilized.

Figure 1: Analysis Model
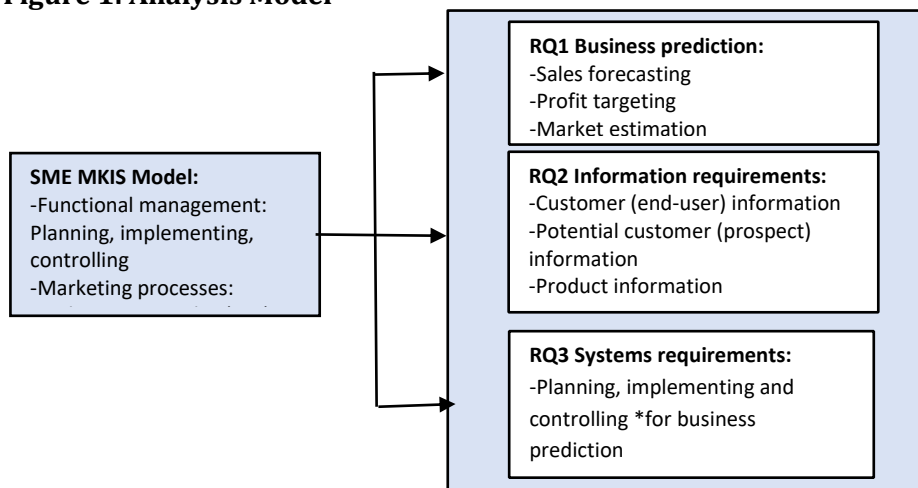
Source: Literature Reviewed by Author

The study will contribute to an MKIS model for SMEs to implement and a qualitative case study that describes how SMEs utilize MKIS.

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ADOPTING SMART METERS TECHNOLOGY AMONG DOMESTIC CONSUMERS IN CEYLON ELECTRICITY BOARD

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Abstract
The immense increase in the electricity demand has created a crisis in Sri Lanka, particularly during the night-time peak. Demand-side management is a strategy used by electricity utilities that aims to persuade consumers to alter their energy consumption behaviour during peak times, and energy monitoring is therefore crucial to the success of this effort. Due to poor monitoring capacity and lagging behind the regional technological norms, the Sri Lankan context made it necessary to introduce smart meter technology among domestic consumers. The study focuses on identifying the prospective barriers and bottlenecks for the implementation of identifying the barriers and bottlenecks for implementing smart meters in the Ceylon Electricity Board (CEB). The exploratory qualitative case study method was used as the study design, and primary data was collected by conducting semi-structured in-depth interviews. The study sample comprises 12 industry experts from CEB and the regulatory body. Thematic analysis is used as the primary data analysis tool. Inconsistency of national policy, poor IT Infrastructure, lack of top management contribution, regulatory barriers, financial restraints and organizational culture were revealed as significant barriers to the results and further categorized into three dimensions: technological, organizational and government involvement and policy support. The study highlights the importance of presenting reliable and accurate data and statistics to establish government policies, increase individual job engagement, develop a performance-oriented culture and collaborate with information industry institutions.

Keywords: Demand side management, energy crisis, prospective barriers, smart meter implementation.

1. Introduction

Electricity is pivotal in modern society, underpinning value-added systems and driving economic development. Access to electricity is inextricably linked to prosperity, serving as the third key determinant of production. Amidst the global energy crisis, non-conventional renewable energy sources, energy conservation, and demand-side management strategies have emerged as viable solutions.

Sri Lanka's electricity sector is grappling with a dual crisis – energy shortages and financial constraints – necessitating an efficient management overhaul of the existing system. Optimizing domestic energy demand and fostering voluntary energy reduction initiatives are critical for economic revitalization. Voluntary energy reduction stands out as a pivotal strategy for Sri Lanka to effectively address its energy expenditure, elevate its environmental performance, and reinforce its energy security.

Instead of resorting to piecemeal solutions, a comprehensive demand-side management system coupled with behavioural changes aimed at promoting voluntary energy conservation is essential. Implementing DSM programs that incentivize consumers to curtail their electricity consumption during peak hours can alleviate grid congestion and lower overall demand.

However, inherent drawbacks within the Ceylon Electricity Board (CEB) hinder the widespread adoption of these measures.

1.1. Research Problem

Sri Lanka's current energy and financial woes have highlighted the urgent need for efficient management of the existing energy infrastructure. In this regard, optimizing domestic energy demand, which currently remains largely untapped for economic productivity, presents a critical strategy for fostering economic growth. Concurrent with this, encouraging voluntary energy reduction among the general public and institutionalizing such practices are essential steps. However, achieving these objectives requires the establishment of an effective demand-side management system within the domestic sector.

The current demand-side management (DSM) paradigm within the Ceylon Electricity Board (CEB) has not gained widespread traction due to several critical limitations. Foremost among these is the inadequate monitoring capability to effectively implement DSM strategies. The existing metering infrastructure lacks the granularity to track real-time demand variations based on time of day, purpose of energy consumption, and other relevant parameters. Furthermore, the dissemination of DSM information to consumers remains limited, hindering the effectiveness of demand reduction initiatives. The CEB's current communication channels are inadequate in reaching a broad audience

and providing tailored energy-saving recommendations. Additionally, the lack of incentives for consumers to participate in DSM programs further impedes the overall effectiveness of these initiatives.

In light of these challenges, the research problem at hand centers on identifying and resolving the barriers hindering the implementation of effective DSM within the CEB. By addressing these limitations, the CEB can effectively harness the potential of DSM to reduce energy consumption, optimize grid operations, and enhance overall energy efficiency.

1.2. Objective of the Study

The overarching aim of this study is to uncover the key obstacles impeding the successful integration of Smart Meter technology. Specifically, the research centers on discerning the most impactful hindrances encountered in the implementation of Smart Meters within the CEB (Ceylon et al.) context, while delving into the underlying causative factors responsible for these challenges.

1.3. Significance of the Study

Sabaragamuwa province has a 10:1 ratio (CEB Assist database) between analogue and digital meters, with 10% switching to digital technology and 90% using manual systems. This weakness can be transformed into an opportunity by eliminating intermediate technology costs and implementing smart metering.

Developing standards and policies ensures efficient, cost-effective power supply for stakeholders, including the Ministry of Power and PUCSL, while enhancing transparency in handling inquiries and complaints.

CEB benefits from this study, as it reduces background preparation for technology-related initiations like automated networks and call center operations. The study also assesses the future benefits of implementing key components of a smart grid for real-time demand adjustments.

2. Literature Review

The long-term objective of any electricity utility is an energy-sufficient nation. By definition, energy sufficiency involves reducing the consumption of energy services to minimize the associated environmental impacts. This may either be through individual actions, such as reducing car travel, or through reducing working time, income, and aggregate consumption ('downshifting) (Sorrell et al., 2020).

2.1. What Is Demand Side Management (DSM)?

According to Mahdi (2015), Demand side management (DSM) can be defined as modifications in the demand-side energy consumption pattern to foster better efficiency and operations in electrical energy systems.

2.2. Why is DSM Important?

DSM has reformed the traditional mode of thinking to construct a new power plant to meet the demand. DSM optimizes the consumption manners and improves the terminal power consumption efficiency, and it can not only fulfill the same power consumption function but also decrease the energy demand. DSM is a strategy to save energy, reduce consumption, and improve the environment. DSM is an essential tool for enabling more efficient use of available energy resources (Parveen, 2012).

2.3. Necessity of Monitoring Capability on DSM

According to Nguyen (2015), real-time monitoring has become a critical part of distribution network operations, enhancing control and automation capabilities.

Shaikh (2014) primarily argues the purpose of every load monitoring is primarily to facilitate the conservation of energy by taking energy efficiency measures like using less energy consumption devices, using the appropriate timing of appliance usage, and eliminating unwanted energy activities.

2.4. Improving Monitoring Capacity

Installing smart metering infrastructures improves the accounting of the use of energy. Smart meters can help using consumers and utilities understand how each consumer uses electricity (Kulkarni, 2012).

DSM is one of the methods of energy efficiency in an intelligent grid that uses improved materials like a smart meter and advanced metering infrastructure, i.e. at the side of the customer. Additionally, this function enables customers to know how much and helpful energy consumption is and adjust to using the amount of energy. Thus, reshape the load profile and reduce the cost (Palensky & Dietrich, 2011).

The advanced metering infrastructure (AMI) equips each customer with a smart meter, whose basic function is to gather the energy consumption status and upload the information to the control Centre (also known as the power distributor or service provider). A smart meter is also capable of receiving control information (e.g., price and tariff bills) from the control center. Such a

two-way information exchange is assumed to be near real-time ultimately (Gharavi & Xu, 2012).

2.5. Rationale for Selecting Domestic Customers for DSM

According to McKenna (2013), compared to the industrial or commercial sectors, the residential sector has a considerably greater number of individual consumers with a relatively small load per individual, offering cost-effective opportunities with low investment needs.

2.6. Best Practices of Smart Meter Implementation

Italy was one of the first countries to develop a smart metering infrastructure. In Italy, Enel, the main Italian DSO (Distributed System Operator) and the third largest energy provider in Europe, have begun deploying smart meters to about 27 million consumers in what is the world's largest smart meters deployment project.

Indonesia is facing a shortage of energy to meet the needs of a developing economy. In addition to improving the existing energy supply system and researching renewable energy, a smart grid is currently considered a potential solution to cope with the power crisis. The findings of the study enhance understanding of consumer perceptions and behaviours and can help decision-makers and energy utility companies develop policies and strategies for a "one-size-fits-all" program related to smart meter applications in future residential buildings.

For **Portugal**, the first study indicated positive results; however, due to severe economic challenges, Portugal decided to review the original findings and considered the analysis inconclusive, also refraining from the ambitious 80% target of the EU (ICCS-NTUA & AF Mercados EMI, 2015).

A utility in **Ghana** piloted a non-technical loss reduction program in 2019 to replace postpaid meters with anti-tamper, anti-fraud, and anti-theft smart prepaid meters. By using customer-level residential billing panel data from 2018 to 2019 obtained from the utility. On average, the results indicated that the reported amount of customers' monthly electricity consumption increases by 13.2% when any tampered postpaid meter is replaced with a smart prepaid meter, indicating the NTLs (Non-Technical Losses) by customers.

In **Taiwan**, smart grid development started when the "Smart Grid Master Plan", drafted by the Bureau of Energy (BOE), Ministry of Economic Affairs (MOEA), was approved by the Executive Yuan. The government plans to invest over 4 billion US dollars in 20 years. As directed by the "Smart Grid Promotion Team" of the MOEA, Taipower, which is the largest energy company in Taiwan, is

implementing and promoting practices that contribute to the development of the Taipower smart grid. The three stages of development are;

1. Short-Term Early Infrastructure (2011–2015)
2. Middle-Term Further Spread (2016–2020)
3. Long-Term Extensive Application (2021–2030).

As of the end of 2011, Taipower completed the installation of Advanced Metering Infrastructure (AMI) meters for 1200 high-voltage customers (Burea of Energy – Ministry of Economic Affair of Taiwan 2012, Taiwan Power Company2013, Taipower Company, 2013)

The **Korean** government has taken three steps in smart grid development.

1. The announcement of the national smart grid vision in 2009.
2. The release of a national smart grid roadmap in 2010.
3. The launch of the Smart Grid Test on Jeju Island in 2009.

The Ministry of Knowledge Economy (MKE) plans to distribute 10 million units of AMI (one for every two homes) by the year 2016. Also, in 2012, it became mandatory to install highly efficient lighting, such as LED in underground parking lots for apartment buildings. Korea will also implement policies for providing AMI in all households by the year 2020 (Energy Korea, 2016).

The **Vietnam** government has taken steps to implement new smart grid and smart meter technologies. In 2012, Decision No. 1670/QD-TTg by the Prime Minister of Vietnam approved a smart grid development scheme for Vietnam. Accordingly, the scheme will be implemented in three phases (Meet-Bis Project et al., 2013).

2.7. Barriers and Bottlenecks

Organizational factors influencing innovation have been studied both conceptually and empirically. A wide range of organizational determinants of innovation adoption has been identified and tested, such as firm size, financial resources, technical skills, centralization of management functions, top management support, and the presence of change agents or champions for a particular technology (Damanpour, 1991; Tornatzky & Fleischer, 1990; and Zhu et al. 2004).

Innovation decisions by organizations are not necessarily based on a purely rational process in which costs and benefits are weighed and acted upon. Instead, decisions may be partly path-dependent, driven or constrained by the cumulative effects of previous decisions and the organizational structures and culture built over time (Rycroft & Kash, 2002). Most utilities are mature organizations, but significant differences in size, ownership form, and corporate

history (e.g., mergers, acquisitions, divestitures) might lead to different adoption outcomes.

Implementing intelligent grids will require additional investment and financial reserves for the smart grid technology transfer, provision of adequate infrastructure, communication systems, hiring of skilled professionals (engineering and other professionals), R&D work and integration with renewable energy sources. However, the payback period is relatively long compared to a high initial investment (Alto & CA, 2011).

Additional infrastructure will be required to deploy and operate smart grid technologies. The smart grid may be understood as modern electric power grid infrastructure for improving efficiency and reliability through automated control, high power converters, modern communications infrastructure, sensing and metering technologies, and modern energy management techniques based on the optimization of demand, energy and network availability (Gungor, 2012)

Power utility-related policies and procedures may be framed to innovative ensure compliance with legislative or regulatory requirements for the implementation of smart grid technologies (Yan, 2013).

2.8. Identification of Literature Gap

Smart meter rollouts have become mandatory in many countries, serving as demand-side solutions and technical transitions. Many and concerns research studies were focused on social factors such as public acceptance, and privacy concerns, and impact on vulnerable populations. Sri Lanka focusing on controlling demand through DSM to manage generation capacity and promote energy conservation attributes among the general public. The successful implementation of smart meters is contingent on overcoming several critical challenges, particularly in Sri Lanka.

Sri Lanka's experience with intelligent meter implementation is relatively incipient, with limited empirical data and information from previous studies or pilot projects. This paucity of knowledge hinders informed decision-making and hampers the identification of potential roadblocks. The limited sharing of information from pilot projects further impedes the collective learning process and hinders the development of effective strategies for successful implementation.

The study will use secondary data from best practices and industry experts to identify the prospective barriers.

3. Methodology

3.1. Study Design

This exploratory qualitative case study investigates barriers and bottlenecks in implementing intelligent meter technology in CEB. It begins with a literature review, focusing on theories, a systematic review, and in-depth interviews with industry experts, professionals, and regulatory bodies.

3.2. Study Approach

3.2.1. Data Collection

Qualitative data collection is usually dependent on interpretation. This means that the data requires several explanations. This is because vast amounts of qualitative evidence are often collected. Additionally, there is no distinction between data collection and its analysis (Cassell & Symon, 1994)

3.2.2. Primary Data Collection

Primary data were gathered from industry experts in CEB and related institutions through in-depth semi-structured interviews.

3.2.3. Population

The population for this analysis included managerial-level executive officers in the distribution sector from various strata. Different levels of authority are represented by the strata that were chosen, such as senior executives, mid-level managers, and junior managers. Strata is once again classified into clusters such as procurement, planning, implementing and operation management, etc.

3.2.4. Sample

Participants were free to express opinions in-depth, asking questions and using interview prompts. Interviews were conducted with experts from diverse sectors and hierarchical levels via Zoom meetings in November 2022. An email was sent to participants to prepare for the interview.

The interview participants were selected via a **non-random convenience** sampling method. The study conducted interviews until theoretical saturation (Sandelowski, 1995; Strauss & Corbin, 2008).

The choice of semi-structured interviews was further due to their significant interpretative power, which gave study informants the necessary freedom and flexibility to communicate their ideas and beliefs (Bryman & Bell, 2003).

Interviewees were selected to collect the appropriate data, views and suggestions from the utility perspective. The data collected through the interviews enable a thorough understanding of prospective barriers from different perspectives and a better assessment of them. Also, the opinions to convert restraining forces into driving forces and get knowledge about the previous mistakes and lessons learned to take preventive actions from the expert point of view.

3.2.5. Development of Interview Questionnaire

Semi-structured questions related to objectives and unstructured ones were asked to approach study findings as depicted in Table 1.

Table 1: Interview Questionnaire

	Question	Objective
1	What is your perspective on the current crisis regarding domestic consumption behaviour in Sri Lanka?	Approach to the current issue, awareness of it, and the sense of urgency to address it and to emphasize the need for change.
2	Among the viable solutions are building new power plants, load-shedding practices, and improving DSM, which should be prioritized according to your opinion?	To understand the need of managing existing resources with the least possible cost.
3	What is your opinion on migrating to Smart Meter-associated infrastructure as an advancement of DSM? ● Importance ● Urgency ● Usefulness and practicality ● Perceived Benefits	To understand the potential of attitudes, willingness to accept the change and how they foresee the future benefits.
4	What type of policy decisions/ corporate decisions need to be established? ● To include this adoption to the energy policy of the country ● To include this adoption in corporate strategy	To know that the Government measures are adequate? How to convince the requirement and build up a national policy to address the issue? How to line up the organizational set-up to make this project successful?

	● Action plan for preliminary initiations	
5	What type of actions are to be taken to? ● Alignment of staff ● Delegation of Authority ● Create change agents within the organization	How to create a vision and communicate it, how to create a powerful team with a good mix and how to empower them.
6	What is the most preferable consumer niche/category for the initial implementation?	Identify how to achieve a more practical and convenient target and the attainable milestones.
7	According to your perspective, what hinders or delays this type of technology adaptation to CEB?	To identify the root causes of delays.
8	What may be the prospective barriers and bottlenecks in each phase of the implementation?	To identify the barriers and their root causes
9	Who will be the pressure groups/what kind of restraining forces could be expected from them and what are the strategies needed to manage/divert or mitigate them?	To identify the restraining forces within the organization
10	Do you have any previous experience with this kind of change interventions/lessons learned, and what is the possibility of utilizing them as driving forces to this implementation?	To identify what are the strategies used in previously implemented change interventions

Source: Author Created

3.2.6. Secondary Data Collection

The secondary data collection was extensive and drew on document analysis. It involved the review of the literature and reports and documents published by power sector utilities of different countries, government policy documents, feasibility studies, annual reports, statistical digests, blogs, road map documents for different interventions and academic journals. The use of these various sources of data allowed for triangulation that enabled the researchers to examine where the data converged and, in turn, provide credibility for the findings (Bowen, 2009; Denzin, 2006).

4. Data Analysis and Results

4.1. Data Analysis

Thematic analysis was utilized to analyze qualitative data from interviews, identifying common themes, topics, ideas, and meaning patterns, and comparing them with replicated data.

The study utilized a thematic analysis process for semi-structured interviews, conducted via Zoom meetings and recorded with consent. Data was transcribed, and microanalysis was conducted to understand overlooked meanings. Codes were defined as the most basic segment, and potential themes were created by analyzing and comparing coded data. Themes were reviewed, defined, and described, and the final analysis was written up.

The findings were used to compare barriers and bottlenecks for Smart Meter technology adoption in the Sri Lankan context with global best practices and benchmarking.

4.2. Primary Data Analysis

Thematic analysis was applied to interview transcripts to identify recurring patterns and frequent responses, dividing content into categories and performing three stages of theme extraction.

1. First Order Themes – Developing descriptive codes
2. Second-Order Themes – Combining descriptive codes as different but closely related categories
3. Third-Order Themes – Linking categorized themes into a theoretical dimension

4.3. Results of Primary Data Analysis

Figure 1 depicts the study's thematic analysis process. To ensure reliability and validity, created themes were cross-checked to determine whether any new themes were appearing or not. The reliability of the analysis was attained once it was confirmed that no new theme was appearing (data saturation).

Figure 1: First, second, and third - order themes of the thematic analysis

Source: Summary of responses given by Thematic Analysis

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4.4. Summary of Secondary Data

Secondary data reveals diverse concerns, best practices, and diffusion strategies influenced by country, demographics, political affiliation, leadership styles, and infrastructure development in Sri Lanka.

5. Discussion of the Findings

The recurring patterns found in the thematic analysis allowed six themes to be derived as barriers to the adoption of smart meter technology in CEB and they were lined up in descending order of the degree of significance.

    a) Inconsistency of national policy
    b) Poor IT infrastructure
    c) Lack of top management contribution
    d) Regulatory limitations
    e) Financial Restraints
    f) Organizational culture

5.1. Inconsistency of National Policy

CEB, a state-owned organization, must adhere to legal requirements and adapt to changing national goals and objectives. However, popularity, publicity, and awareness are crucial factors for widespread public understanding of national policies.

Smart meter deployment is highly influenced by government interventions. As explained by Zhou & Brown, (2016) policy measures that address regulatory, financial and social acceptance barriers tend to be more effective in facilitating smart meter diffusion. Recent empirical trends have indicated that it is the government, rather than utilities, which assumes important roles, particularly in the early stage of smart grid development. The national policy framework for smart grids in the US (Executive Office, 2011) and the smart grid vision and tested in South Korea (Mah, 2012) are some examples.
Interviewer emphasized,
"To implement such advancement in CEB, of course there should be some policy decisions. If we recall memories such as "Vidulamu Lanka", it was taken by the government though the inputs are given by CEB itself. As that policy decision was taken by the government or the ministry, they gave huge popularity and publicity to that theme and all the support was given to achieve the objectives."
           (Respondent 03)
Having a fixed policy is necessitated since it provides a foundation for all the corresponding actions under that particular decision. Additionally, it will end up

as another unsuccessful expedition, whereas experienced in the past. Several respondents have brought up this fact, as shown below.

"Whatever it is, the vision has to be at least fixed for 10 to 20 years. Otherwise, all the plans below the national policy should be changed accordingly. As a utility, we have faced that experience so many times in the past. We planned something and executed different things because of the changes in the national policy. So establishing country-wise policy is crucial, and all other decisions depend on that decision."

(Respondent 05)

"There should be a long-term country policy with a proper cost-benefit analysis of what CEB should do to overcome this crisis, and it should be fixed at least 10 years or so until the outcome is achieved. Unless it should be another incomplete project for CEB."

(Respondent 07)

Government policy inconsistencies cause CEB losses, time, and resources. Learn from global best practices to improve the system.

"Policies should be fixed. What we experienced for a long period is from time to time, from government to government our national policies got changed. Even after working for a few months or years and investing a lot of money, a different new policy comes. So inconsistency is a big problem in going ahead with a particular policy. Most of the developed countries and also the Asian countries like India and China, they fixed the policies and whatever the government comes they go ahead with the existing policies."

(Respondent 10)

National policies serve as crucial instruments for moulding a nation's trajectory and guaranteeing long-term stability. However, when policies are characterized by constant flux or contradictions, public trust in governmental institutions inevitably erodes. This erosion of trust renders it increasingly difficult for governments to effectively implement policies in the future. Furthermore, inconsistent policies foster uncertainty among investors, hindering their ability to plan for the future and ultimately stifling innovation.

In an environment of inconsistent policies, garnering public support for new initiatives becomes a formidable challenge. This lack of support impedes the implementation of reforms and the addressing of pressing issues.

5.2. Poor IT Infrastructure

As explained by Nightingale (2003), smart meters are a more complex technology for incumbent companies than in some previous cases. One reason is that IT hardware, software, and standards are particularly prone to unforeseen complications or incompatibility problems which complicate implementation.

Utility companies must manage large volumes of data and use advanced analytics to convert it into insights for smart meter readings. IT-related applications are crucial in this process. CEB pursued competitive bidding to comply with government procurement guidelines, but the process is complex due to varying data extraction and analysis software. Respondents argue that CEB's current IT capacity is insufficient for this massive task.

"The corporation of our IT unit is inadequate for such a massive implementation. The whole effort may be a waste of time and money if we do not develop our infrastructure to an acceptable level."

(Respondent 07)

"When there are so many interfaces' users will face great difficulty and a lot of time taken for data collecting. When the process itself is a headache, users will not use it. So the main barrier is the infrastructure development after fixing meters."

(Respondent 05)

IT sector development in CEB focuses on smart meters and information system integration for CEB operations. One respondent stated,

"Building the infrastructure should accommodate our whole system and not only this smart meter thing. In that sense, we need a lot of development activities to take place on the IT side. They indeed have to maintain very old and outdated software packages and have very limited resources."

(Respondent 03)

A robust and well-maintained IT infrastructure is a critical foundation for successful smart meter implementation. As Smart meters generate a vast amount of data that needs to be collected, stored, processed, and analyzed. Inadequate IT infrastructure can struggle to handle this data volume, leading to data loss, corruption, or delayed analysis. This can hinder efforts to optimize grid operations, identify energy consumption patterns, and detect anomalies.
Poor IT infrastructure can lead to communication disruptions, preventing smart meters from transmitting data or receiving commands. Also, it has been increased the risk of security breaches, exposing sensitive customer data and compromising grid operations. IT infrastructure needs to scale accordingly to accommodate the growing data volume and communication requirements.

5.3. Lack of Contribution of Top Management

CEB's monopolistic nature creates a less competitive environment, hindering innovation and technology adoption due to limited incentives and technical risks. That is explained in the previous research by (Donaldson & Preston, (1995), as Organizational innovation can be influenced by a range of stakeholders who have an interest in an innovation outcome and the ability to influence that outcome.

Top management plays a crucial role in driving change within an organization. Without their active support, employees may be resistant to adopting new technologies, such as smart meters. This resistance can slow down the implementation process and lead to challenges in integrating smart meters into existing systems. One respondent highlighted,

"Until right now and up to this very moment, we have not seen this as an important thing. There is no particular person or group that delays such a thing. But automatically since we are not foreseen the requirement or benefits, it has been dragged up to now. Now only we are identifying these kinds of avenues."

(Respondent 03)

Another respondent brought up the fact below that people are attracted to and focused on trending technologies without analyzing their compatibility and the degree of compliance with the constraints of the existing system.

"Everyone *is looking at renewable energy and sources, sometimes they are not either educated enough to look at DSM or they just ignore it."*

(Respondent 05)

Sometimes it is all about not working on a proactive basis to prevent future problematic circumstances. Another respondent has stated the fact as;

"CEB has not identified the value of this until the energy crisis became this much crucial. Even though some domestic consumers are asking for a TOU tariff, we are unable to provide it."

(Respondent 06)

Without the unwavering support of top management, the prioritization and allocation of resources for smart meter initiatives can become ambiguous. This ambiguity can lead to delays, cost overruns, and a lack of alignment across different departments within the organization. Top management plays a pivotal role in fostering a culture of innovation by encouraging experimentation, risk-taking, and collaboration. Without their endorsement, the introduction of new technologies, such as smart meters, can be challenging, potentially hindering the realization of their full potential benefits.

5.4. Regulatory Limitations

PUCSL impacted CEB's decisions on raising tariffs and subsidies, causing financial difficulties between 2014-2022. Political pressure prevented CEB from adding implementation costs and obtaining necessary approvals.

"There are lots of restrictions. One thing is CEB is not an independent utility. Because we are bounded by PUCSL, MOPE and other government involvements. Obtaining approval is a big issue"

<div align="right">(Respondent 04)</div>

"As a policy government and PUCSL should identify this as a viable and timely need, and they should allow CEB to add the meter cost to our tariff."

<div align="right">(Respondent 06)</div>

The widespread adoption of smart meters is contingent upon the establishment of robust regulatory frameworks that provide adequate incentives for utilities to invest in the necessary infrastructure. In the absence of clear financial benefits or regulatory mandates, utilities may be reluctant to make the upfront investments required for smart meter deployment, hindering the realization of their potential advantages.

Additionally, the establishment of clear technical standards is essential to ensure seamless integration of smart meters into existing grid infrastructure. Without standardized specifications, smart meters from different manufacturers may not communicate effectively, leading to compatibility issues and integration challenges.

Furthermore, regulatory frameworks must address the allocation of costs and tariff structures associated with smart meter implementation to prevent undue financial burdens on both utilities and customers. Clear guidelines are necessary to ensure that the costs and benefits of smart meters are equitably distributed among all stakeholders, fostering greater acceptance and adoption of this transformative technology.

5.5. Financial Restraint

CEB's electrical network infrastructure is analogue-based, deviating from the proposed digital one. To convert to digital, hardware, software, and costs for installation and maintenance must be purchased. This capital-intensive task is not suitable for the current situation.

"When it comes to the importance, I could say this is the most important proposal that needs to be implemented. Also, it is urgent, but it is not practical at the moment regarding financial affordability as it is a massive implementation.

(Respondent 02)

"Since SM and associated system is capital intensive and infrastructure developmental process and those needs finance."

(Respondent 08)

Implementing smart meters in a challenging financial situation requires cost/benefit analysis, but CEB's persuasive power over fundamental requirements, integrations, and mandatory technological standards makes it a viable option. As stated,

"When it comes to funds allocation, due to the prevailing crisis, priorities go for fuel, medicine, essential foods, etc…However, still, we have the convincing power in there."

(Respondent 03)

Implementing smart meters poses a significant financial challenge for utilities with limited resources. The substantial upfront costs associated with smart meter deployment, encompassing the procurement and installation of smart meters, the upgrading of communication infrastructure, and the development and implementation of requisite software systems, can strain the financial capabilities of these utilities. Consequently, utilities may opt for less expensive solutions that offer limited functionalities or may not be compatible with future technological advancements. This decision to priorities cost-effectiveness over future-proofing can lead to the need for costly upgrades or replacements in the future, further exacerbating the financial burden on utilities.

5.6. Organization Culture

CEB operates as an oligopoly in Sri Lanka's distribution sector, creating fewer competitive environments and high risk due to uncertainty avoidance and a short-term culture. This culture impacts long-term goals and vision achievement.

"Existing organizational culture, structure and top-to-bottom level attitudes may not influence any change intervention. There should be a major transformation in those areas to adopt this type of intervention."

(Respondent 01)

"CEB's main focus is system maintenance purposes rather than energy efficiency initiations. These mindsets should be changed and aligned with the new technology standards."

(Respondent 07)

As explained in the literature, a wide range of organizational determinants of innovation adoption have been identified and tested, such as firm size, financial resources, technical skills, centralization of management functions, top management support, and the presence of change agents or champions for a particular technology (Damanpour, 1991; Tornatzky & Fleischer, 1990; and Zhu, 2004). The same factors were highlighted by the respondents as follows.

"In our Research &Development (R&D) unit and Energy Management (EM) Units, there were key characters who were highlighting the importance and trying to implement this kind of technical adaptation a few years back. But the situation not only in CEB but also in the whole country has not supported that kind of innovative ideas and has not become popular."

Organizations must monitor and respond to external changes and trends to seize opportunities. Strong, cohesive cultures allow people to communicate emotions freely, but rigid formality and adherence to norms can lead to similar views and ideas. Controlling cultures restricts innovation and discourages original thought, as revealed by a few respondents.

"Also, to a certain extent, due to the formality and the high uncertainty avoidance of the organizational culture would not support this kind of change interventions or taking challenges."

(Respondent 03)

"Attitudes of the employees, as well as the process of implementation, are very important to make success, this kind of implementation. In every aspect, their intention, mindset and attitude should be focused on the project to achieve the expected outcome."

(Respondent 09)

Organizational culture plays a pivotal role in the success of smart meter implementation. By nurturing a culture that embraces collaboration, innovation, and continuous learning, organizations can effectively adopt smart meters and reap their potential benefits of service. The adoption of smart meters often requires innovative solutions to address specific challenges and adapt to local conditions.

A culture that encourages innovation creates an environment where employees feel empowered to experiment, challenge assumptions, and develop creative approaches. This willingness to innovate can lead to the development of tailored solutions that are more effective and efficient for the organization's specific needs.

5.7. Dimensions Created from Third-Order Themes

Barriers identified and discussed as third-order themes in the primary data analysis were further used to create three dimensions.
1. Government involvement, policy support and Regulatory Factors
2. Organization Factors
3. Technical Factors

6. Conclusion

We are currently dealing with an energy crisis as a nation. Demand Side Management is a quick fix that promotes energy conservation attributes and ought to be a continuous process mandated to be accustomed among the general population. The existing monitoring capacity of the utility on consumer load variations is not sufficient for DSM initiatives.

Smart Meter-associated AMI technology improves monitoring capabilities and impacts parties and empirical aspects. However, CEB has not shown enthusiasm or shared vision for adopting this technology, despite perceived benefits.

This study sought to identify the most significant barriers to this technology adoption through the use of successful stories and benchmarking from the global context and the reviews of industry experts from the local context. The results delineate six significant barriers and further categorized them into three dimensions.

To achieve positive government involvement, policy support, and fair regulations, statistics-based informed decisions and cost-reflective interpretations are crucial. A performance-oriented culture and increased job engagement are essential for organizational growth. Collaboration with the Institute of the Information Technology Industry and smart appliance manufacturers and dealers is essential for IT infrastructure implementation.

CEB processes often have well-established systems, but proper tracking of utilization and user activity is lacking. For instance, meter reading facilities aim to minimize errors, time, and cost but lack an adequate system to ensure process launch compliance.

Table 2 depicts the bulk supply meter reading details of Sabaragamuwa province for January 2023.

Data shows 48% of meter readings were manually performed, causing diverted objectives from nearly half of the procedure. Factors like inadequate system evaluation, job engagement, comprehension, and knowledge should be considered before implementing a capital-intensive project.

Table 2: Bulk Supply Meter readings in Sabaragamuwa Province – January 2023

Area	Total No of Bulk Supplies	No. of Remote Readings	No. of Manual Readings
Ratnapura	152	129	23
Eheliyagoda	102	36	66
Kahawatta	144	90	54
Embilipitiya	103	21	82
Ruwanwella	103	37	66
Total	604	313	291

Source: Prepared by the researcher using the data extracted from the official MIS of the CEB

Leadership and unique understanding can impact CEB processes, requiring the development of unique methodologies, instructions, and guidelines to eliminate anomalies and positively impact the organization. This clarity provides direction for employees and ensures that their efforts are aligned with the organization's overarching objectives. Leaders empower employees to take ownership of CEB processes by encouraging their participation in process design, implementation, and improvement. This empowerment fosters a sense of responsibility and engagement among employees, leading to more effective process execution.a culture of continuous improvement by actively seeking feedback, identifying process inefficiencies, and implementing corrective measures should be cultivated. This commitment to continuous improvement ensures that CEB processes remain relevant, efficient, and aligned with the organization's evolving needs.

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DETERMINANTS OF FACEBOOK ADVERTISEMENT AVOIDANCE IN THE AUTOMOTIVE INDUSTRY: A STUDY OF WESTERN PROVINCE, SRI LANKA

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Abstract

With the radical transformation of the conventional forms of advertising, Facebook has emerged as a powerful network for advertising where it has expanded to the automotive industry as a common practice leading to major increases in sales growth, profitability, and market share. Regardless of this growing trend, individuals' daily social media activity demonstrates a behavioural pattern known as advertisement avoidance. This conduct has been identified as a major impediment to the anticipated effectiveness of social media marketing operations. Thus, it is vital to identify the major factors that cause Facebook users in the automotive industry to avoid social media marketing. The study deployed a positivist research paradigm and deductive research approach following the survey research technique, which optimally expounds the study's broader research approach. 318 usable responses were examined to validate the proposed hypothesis using multiple linear regression. Results show that privacy concerns, negative experiences, and goal impediments on Facebook are significant influencers of advertisement avoidance, while perceived personalization, and ad skepticism do not have any impact on Facebook users' advertising avoidance behavior. This study will pave the way for automotive industry practitioners to expand their businesses into virtual platforms by understanding major factors that cause Facebook users' avoidance behavior towards social media marketing as this study will be one of the few studies in Sri Lanka that empirically investigates how to stimulate social media marketing via Facebook.

Keywords: Automotive industry, Facebook advertisement avoidance, social media marketing.

1. Introduction

Social media is developed through User-generated content (UGC) along with the conceptual and technological groundwork of Web 2.0 and it improves its inherent interactive content, creation, and collaboration interoperability, etc. However, the traditional definition of social media marketing was narrowed down to a new underpinning of effectively generating, disseminating and applying information amongst social media users about products, services, and brands, in addition, to issues in a very interactive manner among social media users (Ahmed & Rasiq, 2018). The usage of social media is a ground-to-earth social behavior and non-persisted as a miracle and attracted the global community without any boundaries where users are addicted to it as a day-to-day practice (Ahmed & Rasiq, 2018). As a result, social media advertisement practice is commonly used in the promotional mix of the products and service business sectors.

Using social media platforms for advertising is to focus more on the behavior of social media users. Social media information spreading is experienced as collective opinions constructed through different pathways through memes, comments, reviews, and different posts and views positively or negatively affect the intended outcomes of the social media advertising campaigns (Ferrara et al., 2016). Facebook is the most popular social media platform, and global active users are assessed as 2.91 billion and the second highest number of users on YouTube at 2.56 billion (Chaffey, 2022). When considering the Sri Lankan context, 6.55 million users engaged in Facebook's social media platform (Kemp, 2023). With the rapidly growing nature of user engagement to Facebook, which is identified as an effective advertisement network, the number of advertisers choosing the Facebook social media platform for their advertisements has doubled in the past 18 months' period (Irvine, 2022).

Further, Facebook has been a highly attractive social media platform for advertisements due to its extensive popularity. Facebook had 2.936 billion monthly active users, ranking first among the world's most 'active' social media sites. According to data published in Meta's Investor Earnings Announcements indicates that Facebook's monthly active users have increased modestly over the last three months. Furthermore, based on the company's updated audience figures, Facebook's ad reach in Sri Lanka at the beginning of 2022 was comparable to 33.2% of the entire population. In addition, Facebook's ad reach in Sri Lanka in January 2022 was comparable to 63.1% of the local internet user base (Kemp, 2022).

On the other hand, statistics indicate that the top ten industries that contributed the most to the global digital ad spend in 2021 are internet providers, insurance, automotive, consumer services, retail, leisure, tourism, and travel,

transportation, higher education, education management, and E-learning. The automobile sector is the third largest single sector among all of these industries (Shykolovych, 2022). However, the Covid epidemic wreaked havoc on the automotive industry. According to data published in Meta's Investor Earnings Announcements indicates that low automobile sales and the ineffectiveness of out-of-home advertising prompted firms to increase their investment in digital advertisements. Automotive firms spent $35,378,085 on digital marketing in Q1 2020 to maintain sales rates. However, as stay-at-home orders proliferated and the worldwide situation began to stabilize, digital marketing spending fell (Mckannie, 2021).

In Q4 2021, overall digital ad expenditure fell to $5,373,177, representing just 15.8% of the average spend in Q1 2020 (Mckannie, 2021).

Figure 1: Automotive Ad Spend 2020-2021

Automotive global ad spend from 2020 to 2021
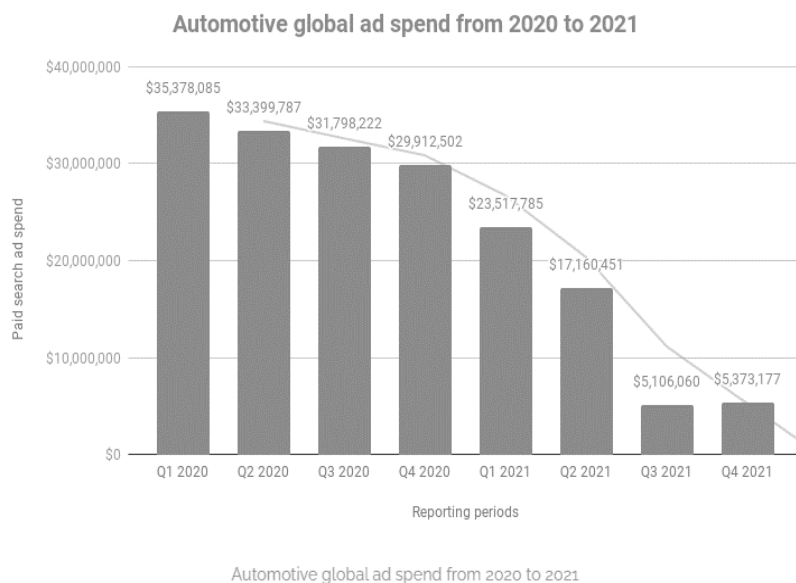
Even though they post their advertisements on Facebook, a considerable portion of users avoid them, according to Facebook's ad performance benchmarks in important metrics like average Click-Through Rate (CTR), Average Cost Per Click (CPC), Average Conversion Rate (CVR), and Average Cost Per Action (CPA).

Accordingly, the Facebook ad performance benchmarks related to the automotive industry can be stated as follows.

Table 1: Facebook Ad performance of the Automotive Industry

Average Click-Through Rate (CTR) on Facebook	0.80%
Average Cost per Click (CPC) on Facebook	$2.24
Average Conversion Rate (CVR) on Facebook	5.11%
Average Cost per Action (CPA) on Facebook	$43.84

Source: Global Digital Advertising Spend by Industry in 2021 (n.d.).

According to Table 1, statistics of the automotive industry, CTR on Facebook is represented by 0.80%, and 99.2% of people do not click on automotive Facebook ads, and CPC on automotive Facebook is $2.24, which is comparatively high and the apparel industry, it is about $0.45. Nevertheless, the Average Conversion Rate (CVR) on Facebook in the automotive industry is as low as 5.11%, which means 94.89% of people avoid automotive-related ads on Facebook. However, the Average Cost per Action (CPA) on Facebook in the automotive industry is very high, like $43.84. Considering all the above facts, it can be stated that the ads related to the automotive industry are published on Facebook in a very large amount, and their cost is very high compared to other industries, those ads are avoided by the targeted customers to a significant extent.

Despite this growing trend, advertisement avoidance is a common behavioral pattern occurred in their day-to-day social media usage. In the context of internet marketing for attracting millennials and the young generation who are commonly reluctant to click or view advertisements, they usually think it is irrelevant to them and they are more conscious of the opportunity cost of time-consuming to surf on the Internet than their elders' (Ahmed & Rasiq, 2018). Hence, advertisement avoidance has an adverse impact on the expected success of social media marketing attempts. Business entities are always spending massive budgets to retain their market share and recall the memory of their services and products. However, advertisement avoidance is identified as the major drawback of online advertising activities, and social media user behavior to be carefully studied for the sake of an effective marketing perspective (Seyedghorban et al., 2016).

Previous research, even on a global scale, indicates that the studies in this domain are highly limited to the automotive industry. Even though past literature has conducted studies on ad avoidance behavior, they have not considered combining Cho and Cheon's (2004) proposed Model of Advertising Avoidance Online and the Hierarchy of Effect Model with factors from empirical research. Moreover, theoretical models have rarely been combined with existing

research to develop useful insights on advertisement avoidance behavior in the automotive industry, especially with regard to Facebook advertising since it is considered the most popular platform based on the previously mentioned statistics. Therefore, research on this domain would provide useful insights to academics, research students, and those who are interested in this research area.

On the other hand, such research has not been done in the Western province of Sri Lanka. Even though it is the province that makes the greatest revenue for the automobile industry, in recent years. This is because Western province records Sri Lanka's highest population density (1,600/km²), and highest road density (0.9 km/km²), while recording the highest motor vehicle ownership of 206 vehicles per 1,000 individuals (Dilini et al., 2020). Further, according to data from the Department of Census and Statistics Report (2021), Western Province has the highest percentage of computer literacy among all provinces, at 45.9%. Therefore, the current study researcher aim is to investigate the Ads related to the automotive industry that are published on Facebook in a very large amount, and their cost is very high compared to other industries. however, those ads are avoided by the targeted customers to a significant extent, hence the reasons for this ad avoidance behaviour need to be examined in the Sri Lankan Western Province context.

1.1. Research objectives

1. To investigate the impact of privacy concerns on Facebook advertisement avoidance in the automotive industry.
2. To investigate the impact of perceived personalization on Facebook advertisement avoidance in the automotive industry.
3. To investigate the impact of ad skepticism on Facebook advertisement avoidance in the automotive industry.
4. To investigate the impact of goal impediment on Facebook advertisement avoidance in automotive industry.
5. To investigate the impact of negative experiences on Facebook advertisement avoidance in the automotive industry.

2. Literature Review

Most of the studies have emphasized the significance of online advertisement avoidance (Cho & Cheon, 2004). Besides investigating internet advertisement avoidance, studies have specifically focused on Facebook advertising avoidance in the automotive industry. The literature reveals several theoretical platforms to study the purchase intention on social media platforms. Cho and Cheon's (2004) Model of Advertising Avoidance Online and the HOE model (Hierarchy of effect model) are examples; in recent history, most researchers have tested Cho

and Cheon's (2004) Model of Advertising Avoidance Online in their studies (Seyedghorban et al., 2016; Kelly et al., 2010). However, a combination of the two models (Model of Advertising Avoidance Online and the HOE model (Hierarchy of effect model) together with empirical research has rarely been considered when developing the study variables.

Therefore, when developing the conceptual framework, initially, Cho and Cheon's (2004) Model of Advertising Avoidance Online was considered, which indicated that perceived goal impediment, perceived ad clutter, and prior negative experiences were causing advertising avoidance. Based on this model, goal impediment and negative experiences were considered independent variables for the current study.

Moreover, Udedeniya et al. (2019) conducted a literature review of factors that impact online advertisement avoidance behaviour in Sri Lanka. Their findings suggested that privacy concerns, perceived personalization, goal impediment, ad skepticism, and negative experiences have an impact on online behavioral ad avoidance in online retailing in Sri Lanka.

However, this model by Cho and Cheon (2004) and the studies by Udedeniya et al. (2019) were not directly attributable to the automotive industry nor limited to Facebook advertising. Hence, the Hierarchy of effects model was considered, which indicates that advertisements affect the cognition, affect, and behavior of consumers. Therefore, based on this model, it was hypothesized that the independent variables (privacy concerns, perceived personalization, goal impediment, ad skepticism, and negative experiences) have an impact on the ad avoidance behaviour of consumers in the automotive industry. Based on the above models and empirical evidence, the conceptual framework for this study was developed.

2.1. Cho and Cheon's (2004) Model of Advertising Avoidance Online

According to the Cho & Cheon (2004) Model of Advertising Avoidance Online, there are three antecedents that lead consumers to avoid online advertisements: interruption of the work, perceived clutter on websites, and unpleasant prior encounters with online advertisements.

Figure 2: Depicts a Model that Elaborates on these Causal Factors
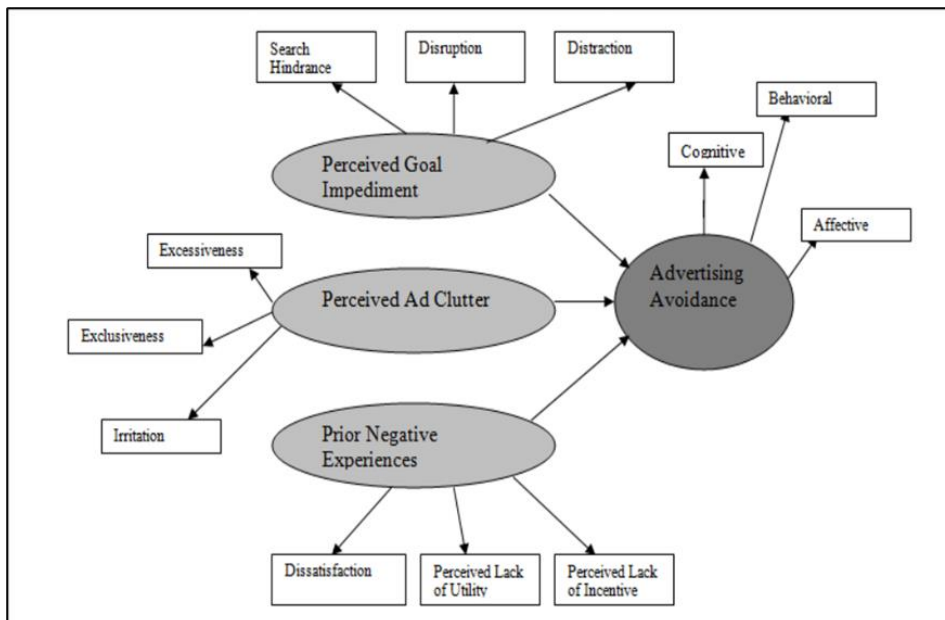
Source: Cho and Cheon's (2004) Model of Advertising Avoidance Online

The perceived goal impediment is the first antecedent of online advertising avoidance. This is significant since the Internet is considered to be more goal and task-focused than conventional media such as television. When advertising reduces or interferes with data gathering and processing, customers may respond unfavorably to the advertisement or product (Cho & Cheon, 2004).

The second cause of internet advertising avoidance is perceived ad clutter, which may similarly be a distraction, prompting consumers to discriminate against and avoid ads that are not relevant or essential to them (Kelly et al., 2010). If this perceived ad clutter is excessive, consumers may have difficulty discriminating against advertising messages, which may lead them to ignore them altogether (Cho & Cheon, 2004).

Previous negative experience, the third antecedent of advertising avoidance, includes occasions in which Internet advertising is misleading, exaggerated, incorrectly targeted, or drives individuals to inappropriate sites (Cho & Cheon, 2004). Such marketing tactics have persuaded people to assume that the Internet is a distrustful medium (Grant, 2005).

Internet experiences employ a variety of communication tactics, each with distinct and frequently unique media features. Within the realm of online media, this study concentrates on Facebook. Therefore, based on this model goal

impediment and negative experiences were considered as two independent variables which have been considered for the current study. Better to use more recent references

2.2. HOE model (Hierarchy of effect model)

The hierarchy-of-effects model was developed by Robert et al. in 1961 as a Model for Predictive Measurements of Advertising Effectiveness (Yoo et al., 2004). Many theories have been presented in prior studies about consumer purchasing behavior. According to the HOE model, there are three ways for consumers to respond to advertising stimuli: cognition, affect, and behavior. The classical attitudes model structure was compounded by beliefs or cognitions, affect, and behavior. These components of attitude act as determinants of its formation. The hierarchy of effects model explains that beliefs are antecedents of attitudes, and attitudes lead to behaviors (Smith et al., 2008).

Several studies have been conducted in the past to study the relationship between attitude and behavior in the context of advertising. Consumer attitudes about advertising were evaluated to investigate the relationship between consumer beliefs about advertising and advertising avoidance behavior. In HOE models, the consumer has no previous knowledge of the advertised brand. The primary purpose of advertising in this case, is to capture the consumer's attention. As a result, he or she will direct cognitive resources toward the advertisement and brand. Advertising that is creative or unique, rather than generic targeting ads, will have a good impact. Otherwise, it will be avoided (Greenwald, 1968).

The next level of customer reaction involves learning and remembering the claims expressed in the advertisement. Most advertisements either associate the brand with favorably regarded features or dissociate the brand from poorly rated traits. If they attach negative attitudes such as goal impediment, privacy consumer, and consumer irritation, they will lead to avoidance behavior. However, as previous research Integrated Information Response Model has shown, cognitive responses to advertising are frequently unfavorable. As a result, exposure to advertising frequently results in adverse cognitive responses, resulting in poorly maintained brand perceptions. People become irritated when the same advertisement appears many times. It will produce a negative attitude in emotional conditions (Smith & Swinyard, 1983). Affective reactions have influenced brand attitude in the advertising arena (Smith & Swinyard, 1958). In addition, the previous study has demonstrated that affective reactions can play a significant part in the persuasion process (Pham, 1998). Therefore, based on this model it has been perceived that negative attitudes which are developed towards Facebook advertising led to advertising avoidance behavior.

2.3. Privacy Concerns

With the rising popularity of social networking and the internet, there has been a heightened awareness and increased concern among individuals regarding their privacy. Hossain (2018) noted that an individual's level of worry over the exposure of personal information to third parties is known as their privacy concern. According to literature confirms that privacy concerns have a significant impact on negative experiences (Li & Huang, 2016). According to Munir et al. (2017), the majority of social media users are concerned about their privacy on social media platforms, and, as a result, they refuse to provide advertisers with the information they request. Therefore, companies should find ways to deliver online ads without interfering with privacy (Manathunga & Wijenayake, 2022). Therefore, based on the previous studies, the researcher hypothesized that,

H1: There is a significant relationship between privacy concerns and Facebook advertising avoidance in the automotive industry.

2.4. Perceived Personalization

Perceived Personalization refers to the process that is customizing solutions according to consumers' information (Edwards & Lee, 2002; Li & Huang, 2016); it is personal communication based on individual preference (Cho & Cheon, 2004; Li & Huang, 2016). Furthermore, tailored advertising is the new wave in the digital market and is widely implemented on social networking websites (Gironda & Korgaonkar, 2018). The research of Munir et al. (2017) also suggested that it will be straightforward for companies to attract the attention of their ideal clients by using targeted, customized advertisements. However, Rich et al. (1978) claimed that the less likely buyers are to ignore advertisements in advance, the more relevant they are. Nyheim et al. (2015) also stated that individualized commercials have been successful in boosting patronage. Therefore, ad-skipping behavior will decrease. As a result, it will inspire the development of a more effective marketing strategy. Therefore, based on the previous studies, the researcher hypothesized that,

H2: There is a significant relationship between perceived personalization and Facebook advertising avoidance in the automotive industry.

2.5. Ad Skepticism

In general ad skepticism is defined as the tendency towards doubt/disbelieve advertising claims (Obermiller & Spangenberg, 1998; Khuhro et al., 2017). Furthermore, Khuhro (2017) mentioned that ad-skepticism could be practiced across a wide variety of online platforms consumers' general mistrust is reflected in their suspicion about targeted advertising. There is a direct

correlation between skepticism about ads and the frequency with which people avoid seeing them. It also causes people to seek out data from many places regarding the same product (Obermiller et al., 2005). Previous research that looked at the link between skepticism about ads and avoiding them found a positive correlation between the two concepts (Khuhro et al., 2017; Munir et al., 2017; Raziq et al., 2018). Similar results were observed by Baek and Morimoto (2012), who used skepticism about advertisements as an intervening variable and discovered a positive correlation between skepticism and ad avoidance. Therefore, based on the previous studies, the researcher hypothesized that,

H3: There is a significant relationship between ad skepticism and Facebook advertising avoidance in the automotive industry.

2.6. Goal Impediment

Previous research defines goal impediment as the "belief that one's aim while online (e.g., web browsing, looking for content) cannot be realized as a result of online ads, thereby leading to ad avoidance" (Ferreira et al., 2017). The internet is a platform where people go to accomplish specific goals, and because some targeted adverts might be annoying or otherwise detrimental to that experience, users have learned to avoid them (Li & Huang, 2016). Sheehan and Hoy (1999) also found that interrupted advertising will directly affects consumers' advertising avoidance behavior (Li & Hung, 2016). Consumers may also experience negative emotions because the advertising content is not consistent with the webpage they are browsing (Burns & Lutz, 2006). Therefore, based on the previous studies, the researcher hypothesized that,

H4: There is a significant relationship between goal impediment and Facebook advertising avoidance in the automotive industry.

2.7. Negative Experience

According to researchers' consumers' prior interactions have an effect on their current perspectives and decisions (Hong & Sternthal, 2010; Rosengren & Dahlén, 2015). For this reason, ad-skipping may emerge from consumers' historical dissatisfaction with and their belief in the ineffectiveness of internet advertisements (Cho & Cheon, 2004; Obermiller et al., 2005). Negative experiences with online behavioral advertising might include things like inutility and lack of incentive. Customers will stay away from providers that give them negative experiences (Li & Huang, 2016). Therefore, based on the previous studies, the researcher hypothesized that,

H5: There is a significant relationship between negative experiences and Facebook advertising avoidance in the automotive industry.

3. Methods

3.1. Conceptual Framework

The following conceptual framework for this study has been developed using the theoretical underpinnings of Cho and Cheon's (2004) Model of Advertising Avoidance Online and the HOE model (Hierarchy of effect model).

Figure 3: Conceptual Framework
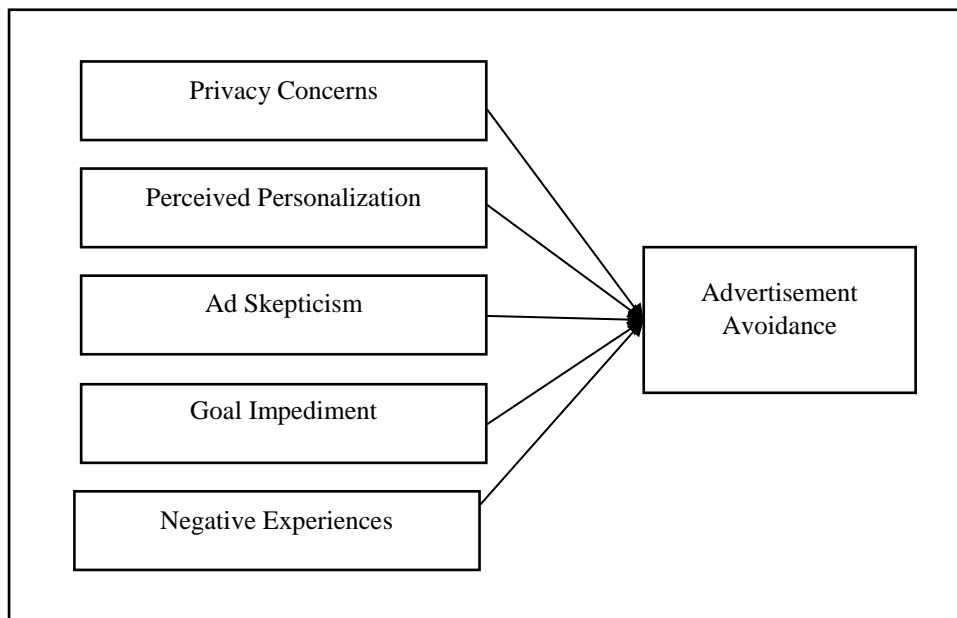
Source: Author Created

Further, similar to the current study, prior studies have been used to develop their conceptual frameworks with similar variables (Smith et al., 2008; Kelly et al., 2010; Baek & Morimoto, 2012; Lee et al., 2016). However, these variables are yet to be applied to the automotive industry, especially in the case of Sri Lanka. Hence, targeting this industry the conceptual framework has been developed to examine ad avoidance behavior in Facebook users.

Since positivistic philosophy constructs hypotheses based on existing theory (Sounders et al., 2014), the current research study follows positivism as the research philosophy. The researcher used the deductive approach and quantitative research design. The study population entails Facebook users who are based in the Western province and have come across automotive ads. The sampling approach utilized was judgment sampling, which is a non-probability sampling strategy based on the researchers' discretion. Since the population size is more than 1,000,000, the sample size selected for this study is 385 based on a

95% confidence level and a margin of Error of 5%. This strategy is effective when searching for suitable persons and is a valuable tool for researchers who want participants to voluntarily engage in a study (Lund Research, 2012). Therefore, the researcher used this method since the questionnaire was shared with the respondents through Facebook as the research was focused on Facebook advertisement avoidance.

4. Results and Discussion

Unprocessed and unanalyzed quantitative data must be processed and evaluated to become actionable information. There are numerous methods for describing and analyzing a connection with data, including charts, graphs, and statistics (Saunders et al., 2014). The SPSS statistical tool was used to extract central tendencies, including mean, mode, and standard deviation for each item. Data analysis in SPSS was also used to conduct Cronbach's alpha, a measure of internal consistency, for the study.

4.1. Descriptive Statistics

A response rate of 79.5% was achieved where 400 questionnaires were shared and 318 completed questionnaires were received. Out of those 318 respondents, most of the respondents were female, and the rest 140 (44%) were male. Considering age, the majority of the respondents, which amounted to over half of the sample size (65.4%) were between the ages of 20-29. The next significant group of customers are between the ages of 30-39 which represents 25.8% of the respondents. However, only 1 participant stated that they were under 20 years old. Moreover, the 40 – 49 age group was represented by 4.1% of the sample, and similarly, 4.4% represented those above 50 years of age.

4.2. Reliability Analysis

The below table 2 examines the reliability of the data by calculating Cronbach's Alpha Values for each of the selected study variables.

Table 2: Cronbach's Alpha Values of the Variables

Variable	Items	Cronbach's Alpha Value	Interpretation
Privacy Concerns	04	0.948	Excellent
Perceived Personalization	04	0.949	Excellent
Ad Skepticism	04	0.949	Excellent

Goal Impediment	04	0.978	Excellent
Negative Experience	04	0.930	Excellent
Advertising Avoidance	04	0.970	Excellent

Source: Survey Data

Since all Cronbach's Alpha Values are above 0.8, the data set is reliable according to the suggestions of Sekaran and Bougie (2016).

4.3. Validity Analysis

The validity of quantitative data was determined by the form of the questions in the questionnaires and how closely they are related to the research area (Collis & Hussey, 2003).

Table 3: Validity Testing

Variable	KMO Values	Bartlett's Test of Sphericity Values	Number of Items	Interpretation
Privacy Concerns	0.846	0.000	04	Accepted
Perceived Personalization	0.868	0.000	04	Accepted
Ad Skepticism	0.824	0.000	04	Accepted
Goal Impediment	0.850	0.000	04	Accepted
Negative Experience	0.804	0.000	04	Accepted
Advertising Avoidance	0.866	0.000	04	Accepted

Source: Survey Data

Since all KMO values are between 1 and 0.8, the sample is considered adequate. Moreover, Bartlett's Test of Sphericity Values confirms that all variables are significant, hence the validity of the study variables are confirmed.

4.4. Multiple Regression Analysis

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.781[a]	.611	.604	.54534
a. Predictors: (Constant), NEAVG, GIAVG, PCAVG, PPAVG, ASAVG				

Source: Survey Data

This table 4, above indicates how well the regression model fits the collected data. The R-value of 0.781, which is the multiple correlation coefficient, indicates a strong prediction of the dependent variable, which is FB ad avoidance behaviour. The R square, which is the coefficient of determination of 0.611, indicates the proportion of variance in the dependent variable (FB ad avoidance behaviour), which can be attributed to the independent variables (negative effects, goal impediment, perceived personalization, privacy concerns and ad skepticism). Therefore, 61.1% of the variance in FB avoidance behaviour is explained by the chosen independent variables.

Table 05: ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	145.467	5	29.093	97.828	.000[b]
	Residual	92.786	312	.297		
	Total	238.253	317			
a. Dependent Variable: AAAVG						
b. Predictors: (Constant), NEAVG, GIAVG, PCAVG, PPAVG, ASAVG						

Source: Survey Data

According to Table 05, the analysis of the Variance (ANOVA) test shows the p-value is 0.000, which is less than 0.5. It concludes that the regression model is statistically significant.

Table 06: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.551	.228		2.415	.016	.102	.999
	PCAVG	.333	.056	.258	5.991	.000	.224	.443
	PPAVG	.012	.045	.012	.258	.796	-.077	.100
	ASAVG	.089	.053	.086	1.670	.096	-.016	.193
	GIAVG	-.095	.027	-.128	-3.568	.000	-.148	-.043
	NEAVG	.512	.050	.543	10.169	.000	.413	.611

a. Dependent Variable: AAAVG

Source: Survey Data

According to coefficients table 6, the p-value of the independent variable of privacy concerns is 0.000, and it is statistically significant due to the p-value is less than 0.05. Moreover, the B coefficient of privacy concerns is 0.333, hence the positive beta value indicates that there is a positive impact of privacy concerns on Facebook advertising avoidance in the automotive industry. Therefore, this concludes that there is a significant impact of privacy concerns on Facebook advertisement avoidance in the automotive industry. Thus, there is enough evidence to accept H1. This outcome corresponds with the findings seen in prior research. According to Wijenayake and Pathirana (2018) conclude that most consumers avoid Facebook advertisements due to privacy concerns. Further confirming, a study done by Li and Hung (2016), and Munir et al. (2017) concluded that there is a favorable correlation between privacy concerns and avoidance of internet marketing.

The p-value of the independent variable of perceived personalization is 0.796, and it is not statistically significant as the p-value is greater than 0.05. Therefore, perceived personalization does not impact Facebook advertisement avoidance in the automotive industry. Thus, there is enough evidence to reject H2. Turow et al. (2015) assert in the same context that customers are implicitly prepared to provide their information as a trade-off for their privacy. As a result, marketers are driven to develop more targeted, intrusive, and disruptive

advertising strategies capable of tracking users' social media profiles, backgrounds, activities, and lifestyles across platforms. However, according to other academics (e.g., Awad & Krishnan, 2006), customers who value information openness are wary of disclosing personal information and hence are less interested in participating in online customization. Similarly, Kim et al. (2019) contended that the openness of customized marketing influences ad performance by adjusting consumers' relative privacy concerns against their desire in customization. This privacy-related reaction has resulted in a protective mindset, making customers less motivated to make purchases and displaying ad avoidance, which prevents users from engaging with the advertisement.

Furthermore, the p-value of the independent variable of ad skepticism is 0.096, and it is not statistically significant due to the p-value being greater than 0.05. Therefore, this concludes that ad skepticism does not impact Facebook advertisement avoidance in the automotive industry. Thus, there is enough evidence to reject H3. This outcome corresponds with the findings seen in prior research. Miia and Dong (2019) further concluded that ad skepticism does not have any impact on Facebook advertisement avoidance. The p-value of the independent variable of goal impediment is 0.000, and it is statistically significant as the p-value is less than 0.05. However, the B-coefficient of the variable is -0.095 of the, hence the negative beta value indicates that there is a negative impact of goal impediment on Facebook advertising avoidance in the automotive industry. Thus, there is enough evidence to accept H4. This outcome corresponds with the findings seen in prior research. According to Hossian (2018) people dislike it when advertisements interfere with their goals. This is significant since the internet is thought to be more goal and task focused than conventional media such as television. When advertising delays or ceases data collection and processing, customers may react negatively to the advertising or product (Cho & Cheon 2004). Pop-up ads, distracting ads, and commercials that need consumer action before they can resume their online activity can convince people to remove the message instantly and therefore avoid the advertising completely (Miia & Dong, 2019).

Finally, the p-value of the independent variable of negative experience is 0.000, and it is statistically significant due to the p-value is less than 0.05. Moreover, the coefficient of the Negative Experience is 0.512, hence the positive beta value indicates that there is a positive impact of negative experience on Facebook advertising avoidance in the automotive industry. Thus, there is enough evidence to accept H5. Therefore, finally, we can conclude that there is a significant impact of negative experience on Facebook advertisement avoidance in the automotive industry. Evidence from the prior research further concluded that there is a meaningful connection (effect) between adverse experiences and

aversion to advertising (Cho & Cheon, 2004). In addition, Li & Huang (2016) found that the major reasons people have bad experiences with online ads are due to a lack of utility and incentives or rewards. Another study discovered that the most common reasons for avoiding internet advertisements were associated with feelings of being overwhelmed, wasted time, and irritation (de Gregorio & Jung, 2017).

5. Conclusion and Policy Implications

The study findings provide notable managerial implications when examining Facebook ad avoidance behavior in the automotive industry. As highlighted in the problem statement, the conversion rate of ads is relatively low at 5.11% in the automotive industry. This indicates that the advertising spending in this sector has failed to reap the expected benefits. Hence, the findings of this study would provide valuable insights to managers which could be utilized when conducting Facebook advertisement campaigns in the future.

The study findings indicated that the higher the privacy concerns and negative experiences faced, the greater the ad avoidance behaviors. Concerns about privacy mostly stem from the terms and restrictions that marketers are required to comply with. Businesses should figure out how to show advertisements online without compromising the privacy of users. Additionally, they have to disclose the reason for data collection while using cookies. Data transparency is essential as a remedy for this. Therefore, the findings signify that advertisers targeting the automotive sector must continue to focus on protecting privacy and not compromise this trust. Moreover, this would ensure that the exchange of information allows more precise targeting. In the realm of digital advertising within the automotive industry, the ramifications of negative experiences on Facebook ad avoidance behavior are profound and demand strategic consideration from marketers. Negative encounters, be they related to product dissatisfaction, suboptimal customer service, or unmet expectations, wield significant influence over consumer perceptions and preferences. Such adverse experiences can trigger a defensive response, prompting users to actively avoid or disengage from subsequent advertisements on the platform. To mitigate this phenomenon, marketers must prioritize a proactive and customer-centric approach. This involves closely monitoring and promptly addressing negative feedback, leveraging social proof mechanisms such as positive reviews and testimonials, and implementing targeted strategies to counterbalance adverse perceptions. Crafting ad content that resonates positively with specific audience segments, optimizing user experience on landing pages, and transparently addressing concerns contribute to fostering a more favorable environment. By acknowledging the impact of negative experiences and actively working to counteract them, marketers in the automobile industry can not only mitigate

Facebook ad avoidance but also cultivate a more receptive audience, ultimately optimizing the effectiveness of their digital advertising efforts.

The findings assist advertisers in creating tactics that are more potent at boosting click-through intentions. Since social ads offer benefits to both consumers and marketers. It reduces the amount of time and money spent searching by providing customers with messages that are pertinent to their needs (Srinivasan et al., 2002). Additionally, social ads give advertisers access to affordable, customized commercial adverts that have a greater chance of reaching the target market's prospects (Kim & Ko, 2012). However, a balance should be ensured to minimize the risk of creating privacy concerns for the customer. Given the trend toward online personalization and data collection technologies, the findings of this paper are important for academics and advertisers because personalized advertising on social media can result in unfavorable results, such as negative consumer responses and ineffective ad performance.

On the other hand, goal impediment indicated a negative response which suggests that goal impediment is not a factor that increases advertisement avoidance behavior. Therefore, if managers are able to make attractive advertisement campaigns, they are more likely to gain the attraction of target groups.

Finally, understanding the causes of ad avoidance may help marketers develop solutions to increase ad effectiveness, reduce marketing budget, and boost good consumer attitudes toward customized ads. Because online advertising is an important source of revenue for social media platforms, it is also interesting for social network services to provide an advertising format that is appealing to marketers and increases the likelihood of consumers interacting with the automobile Facebook advertisement.

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FACTORS AFFECTING ON TRADITIONAL RICE PURCHASE INTENTION AMONG MILLENNIAL CONSUMERS IN SRI LANKA

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Abstract

The traditional rice industry in Sri Lanka, which has a 3000-year history and more than 1000 varieties of rice, is a somewhat hidden industry when compared to other improved rice varieties. Although traditional rice varieties consist of several nutritional values and a long history, the majority of consumers in Sri Lanka where rice is the main food, are used to consuming newly improved rice varieties. Accordingly, due to the difficult status of Sri Lankan consumers' purchase intention toward traditional rice, this study investigates the factors affecting traditional rice purchasing intention, with special reference to millennials in Sri Lanka. The study is quantitative, and a structured questionnaire was randomly shared with a total of 251 Sri Lanka's millennial population. Based on these findings, the study emphasizes that there is a positive and significant impact of the factors affecting millennial consumers' traditional rice purchase intention. The research provides an opportunity for Sri Lankan entrepreneurs and firms in the industry to improve the traditional rice market by paying attention to factors that influence the intention of millennials to purchase traditional rice.

Keywords: Consumer purchase intention, millennials, traditional rice.

1. Introduction

Traditional Rice Varieties (TRV) are rice varieties passed down through the generations and have been cultivated and protected by Sri Lankan farmers for more than 3000 years. The distinctive attributes of TRV, such as its high nutritional content and health benefits, have increased consumer demand for the product and its popularity in the home market (Subashini, 2021). In the early 1960s, Sri Lanka grew more than 1000 traditional rice types. However, the "H" series of rice varieties were introduced in the 1950s in response to population growth, and as a result, the nation lost many of its traditional types (Rambukwella, 2016). Shyama (2020) stated that Kuruluthuda, Kaluheenati, Rathdel, Pachchaperumal, Madathawalu, and Dehanala are some of the most popular brown traditional rice varieties, while Suwandal, Kahavanu, and Kahamaala are the most popular white varieties. It is known that these types of traditional rice have plenty of nutritional and medicinal qualities.

Currently, out of the total paddy land extent, 99% of the land is cultivated with new and improved rice varieties consisting of high yields. As a result of the introduction of new improved rice varieties, traditional rice cultivation in Sri Lanka was discouraged. As a component in organic agriculture, the Sri Lankan government has referred to re-introducing traditional rice to farmer fields, mainly considering its nutritive and Ayurvedic value and resistance to insects, diseases, and adverse climatic conditions (Berger, 2009). It is stated that it has been known through various studies that Sri Lankan traditional rice varieties exhibit great health benefits and bioactivities in contrast to improved varieties. Traditional rice varieties from Sri Lanka have excellent nutritional content, low glycemic indexes with antidiabetic effects, anticancer activity against human lung cancer cells, anti-glycation and anti-amylase impact, and other beneficial properties that have been scientifically demonstrated. It can be identified by investigating that traditional rice consisting of these health benefits is embedded in the consumer's mind as a medicine taken by consumers suffering from non-communicable diseases. Other health benefits that traditional variations are credited with include providing a cooling sensation in the body, enhancing vocal clarity, vision, and fertility, managing body sugar levels, and reducing rashes. Due to their inherited qualities, several traditional rice varieties are well-liked by the local populations. Hard-working folks are especially advised to eat the Suwandel type, which, when cooked, has a milky flavor (Sanjeewani, 2018). Traditional rice types are in high demand due to their distinctive flavor, taste, texture, nutritional content, and medicinal properties. Traditional rice types are cultivated and exported by Sri Lankan rice producers and suppliers.

In addition, the Suwandal, Elhal, and Rathhal types are well-known in foreign markets as healthful rice for diabetes people. Sri Lanka exported traditional rice worth $7 million to the United Arab Emirates, Canada, the United Kingdom, Australia, and Italy in 2010 (Ginigaddara, 2017). Different researchers have investigated that according to great health benefits, the traditional rice varieties are most suitable to prevent people from non-communicable diseases. Nanayakkara (2020) stated that according to a survey, after the age of 35, the risk of non-communicable diseases rapidly increases in Sri Lanka. Therefore, people between the ages 27 – 42 should pay attention to healthy foods. Due to this vulnerability, the consumption of traditional rice among this age group can be increased by adapting them to a healthy diet. Due to these factors, investigating the factors affecting traditional rice purchasing intention among millennial consumers is appealing. The purchase of organic food products is based on subjective experiences and perceptions of these products. It is perceived that organic food is healthier, natural, nutritious, and environmentally friendly. Consumers with positive attitudes towards organic food are more likely to display positive behavioral and purchase intentions.

A European Action Plan states that 'increasing consumers' organic knowledge is vital for the demand of organic food because organic knowledge influences attitudes towards organic food products that directly determine the decision or intention to buy the product (Baoguo & Laksitamas, 2020).

Although traditional rice has plenty of health benefits and a long history, the majority of consumers in Sri Lanka, where rice is the main food, are used to consuming new improved rice varieties. These factors reflect the difficult status of Sri Lankan consumers' intentions toward traditional rice. Different academics have examined how numerous variables impact consumer intention in every market. Ginigaddara et al. (2017) stated that awareness of traditional rice significantly influences consumer purchasing intention. As well as community, education level, income of household head, presence of household members with non-communicable diseases, and number of diseased persons in a family affect the intention of traditional rice consumers in Kagalle district. Neeraji et al. (2020) found that individual factors such as health concerns, environmental concern knowledge and awareness, eco-labels and price, followed by trust in organic food, are the most important factors influencing organic food purchase. Fustin & Fyoti (2012) investigated that health, availability and education from demographic factors positively impact consumers' purchasing attitudes towards organic foods. Anupam et al. (2017) studied how consumers' attitudes about organic food items are influenced by four factors: health consciousness, knowledge, subjective standards, and pricing. Sarah et al., 2021 investigated how social, cultural, personal and psychological factors significantly impact consumers' attitudes toward organic

food. According to these statements, various researchers have investigated various factors affecting consumer intention to organic rice and other foods. On the other hand, Rambukwella (2016) stated that it can be determined that there is a lack of investigations on factors affecting consumer intention to traditional rice compared to other industries in Sri Lanka. Hence, based on this situation, this research is centered on measuring how factors affect the traditional rice purchase intention of millennial consumers in Sri Lanka.

1.1. Research Questions

The intention of the research is to find out the impact of factors on consumer intention to traditional rice in Sri Lanka. The research questions are,

1. Do attitudes have an impact on consumers' traditional rice purchase intention?
2. Do subjective norms have an impact on consumers' traditional rice purchase intention?
3. Does perceived behavioral control has an impact on consumers' traditional rice purchase intention?
4. Does environmental concern has an impact on consumers' traditional rice purchase intention?
5. Does willingness to pay has an impact on consumers' traditional rice purchase intention?

1.2. Objective of the Study

1.2.1. General Objective

The general objective of this study is to investigate factors affecting the traditional rice purchasing intention of millennial consumers in Sri Lanka. The researcher developed specific objectives to achieve the general objectives.

1.2.2. Specific Objectives

1. To investigate the impact of attitudes on consumers' traditional rice purchase intention.
2. To investigate the impact of subjective norms on consumers' traditional rice purchase intention.
3. To investigate the impact of perceived behavioral control on consumers' traditional rice purchase intention.
4. To investigate the impact of environmental concerns on consumers' traditional rice purchase intention.
5. To investigate the impact of willingness to pay on consumers' traditional rice purchase intention.

2. Literature Review

2.1. Consumer Purchasing Intention

Purchase intention refers to a choice to take action or a mental state that reflects the consumer's perspective on engaging in a specific behavior. Researchers discovered that purchasing attitude and perceived behavioral control are the two factors that directly influence purchase intention. Product knowledge, perceived risk, and perceived benefit are the three factors that indirectly influence it (Matsumoto, 2017). Marketing managers frequently gauge and include purchase intentions in new and existing goods and services choices. Future sales can be predicted by looking at purchase intentions. Understanding purchase intention is a useful tool for predicting customers' behavior because it has been developed from various perspectives and aspects (Zarif S., 2019). Also, this behavioral factor emphasizes the preferences of the consumers and encourages their propensity to buy a product.

According to Kumar (2020) it is crucial for consumer purchasing behavior since consumer purchase intention is likely to result in product purchases.

2.2. Traditional Rice in Sri Lanka

One of the largest growth markets in the food industry, the organic market has recently seen significant development. Organic foods are often thought to be more nutrient-dense, healthier, safer, and environmentally friendly. Teng & Wang (2013) stated that, according to earlier research, people are more likely to spend more on organic foods due to their higher quality and taste as well as their verified "safeness". Growing traditional rice types while using organic farming methods has regained popularity. According to the investigation of Wijesinghe et al. (2021), some Sri Lankans are switching to healthier eating habits with increased income and a greater awareness of their health. In the organic market that is developing in Sri Lanka, traditional rice has a significant position. Rambukwella & Priyankara (2016) stated that Sri Lanka, which was once known as the "Granary of the East," grows more than 1000 different kinds of traditional rice compared to newer varieties employed in chemically intensive paddy production; these traditional paddy types have strong features that allow them to endure climate change impacts like as droughts, heavy rains, and floods. In Sri Lankan markets, there are a number of significant traditional brown and white rice types. While Suwandel and Kahawanu are prominent white types, other popular brown varieties are Kuruluthuda, Kaluheenati, Rathdel, Pachchaperumal, Madathawalu, and Dahanala. Karunarathna (2018) stated that traditional rice varieties like Kaluheenati, Suwandel, Rathdel, Madathawalu, Hetadha Wee, Ma-Wee, Pachchaperumal, and Kuruluthuda are

being grown and exported by Sri Lankan rice producers and suppliers. Consumers from Sri Lanka and abroad favor these types.

2.3. Theory of Plan Behavior Model (TPB)

Researchers have used various theoretical models to evaluate the factors affecting consumer purchasing intention. Among them, numerous research studies have employed the Theory of Plan Behavior Model (TPB) to forecast behavioral intention and actual action. TPB is the most accurate method for predicting a person's consumption intention, and it has been used to investigate the relationships between attitudes, subjective norms, and perceived behavior control to ascertain people's intents and behaviors (Sentosa , Kamariah , & Mat, 2012). TPB was used to investigate the effects of attitude, subjective norms, and perceived behavior control on intention. TPB asserts that a person's purpose includes an immediate precursor to actual behavior. The goal includes the behavioral motivations behind the action (Nitharjan, 2021). The TPB is used to explain the antecedents of intention to purchase organic skin/hair care products.

Meanwhile, few research studies have used this theory to examine consumers' intentions to purchase organic food, particularly rice, a major food source in many nations (Krairit, 2019). Therefore, the current research adopts the TPB to understand the factors affecting consumer purchasing intention for traditional rice in Sri Lanka.

2.4. Modified Theory of Plan Behavior Model (MTPB)

In its current form, the Theory of Planned Behaviour does not consider ethical or social issues within its model measures. The consideration of additional model measures states that 'The Theory of Planned Behaviour" is, in principle, open to the inclusion of additional predictors if it can be shown that they capture a significant proportion of the variance in intention or behavior after the theory's current variables have been taken into account. As such, the theory has been modified for ethical concerns in consumer decision-making. The tendency of the original theory to focus on the self-interested concerns of individuals may be limited given the more societal-centered viewpoint of ethically concerned consumers. Some researchers have argued that a measure of personal 'moral' or 'ethical' obligation is added to the traditional Theory of Planned Behavior structure. Such a measure represents an individual's internalized ethical rules, which reflect their beliefs about right and wrong. In many instances, adding such a measure has been found to improve the explanation of intention (Shiu & Shaw, 2006). Shaw et al.'s (2000) study supported the notion that ethical consumers make ethical consumption choices because ethical issues have become an important part of their self-identity, and as such, self-identity was found to be

significant in the explanation of intention to purchase a fair trade grocery product. This was also supported by earlier research that found that ethical consumers do not identify with only one ethical issue but a range of ethical issues.

2.4.1. Attitudes (ATT)

Research has also suggested that the Theory of Planned Behaviour be modified to incorporate a measure of self-identity. The rationale for this argument is that as an issue becomes central to an individual's self-identity, behavioral intention is accordingly adjusted. Indeed, Ethical consumers make ethical consumption choices because ethical issues have become an important part of their self-identity (Shiu & Shaw, 2006). Mhlophe (2016) stated that Consumer intentions are influenced by their attitudes, and the more favorable the attitude, the more likely the consumer is to engage in the behavior. Zarif et el. (2019) stated that Consumer attitudes impact their intentions, and a positive attitude increases the likelihood that the consumer will engage in the behavior.

Bashir (2018) investigated that, according to earlier research, customers' good attitudes toward halal food products have a considerable and beneficial influence on their purchasing intentions. Based on the previous literature, the following hypothesis will be tested in the current study.

H1 - There is a significant impact of attitudes on consumer purchase intention toward traditional rice.

2.4.2. Subjective Norms (SN)

The term "subjective norm" relates to how consumers perceive social normative influences, such as those from their families, friends, coworkers, relatives, or other influential groups. A person feels societal pressure to engage in or refrain from a certain behavior (Ajzen, 2005). According to (Bashir, 2018), based on earlier research, SN is determined that friends and family members undoubtedly impact customers' decision-making when it comes to the products they choose. Based on the previous literature, the following hypothesis will be tested in the current study.

H2 - There is a significant impact of Subjective Norms on consumer purchase intention for traditional rice.

2.4.3. Perceived Behavioral Control (PBC)

The phrase "people's impression of the ease or difficulty of doing the behavior of interest" describes perceived behavioral control (PBC). It is the capacity of a person to carry out a specific behavior (Ajzen, 2005). (Sleki et el., 2020) stated

that many elements, including time, money, and talents, have been noted as crucial PBC components. Additionally, PBC is assessed based on how well people perceive their skills, knowledge, and resources.

According to (Bashir et el., 2018), PBC also affects behavior and intention through behavioral intention, both directly and indirectly. Based on the previous literature, the following hypothesis will be tested in the current study.

H3 - There is a significant impact of Perceived Behavioral Control on consumer purchase intention to traditional rice.

2.4.4. Environmental Concern

Concern for the environment is measured by people's awareness of environmental damage, and their efforts and readiness to find solutions.

The primary driver of adopting environmentally responsible conduct and participating in environmental conservation is respect for the environment (Saut & Saing, 2021). Based on the previous literature, the following hypothesis will be tested in the current study.

H4 - There is a significant impact of Environmental concerns on consumer purchase intention for traditional rice.

2.4.5. Willingness to Pay

According to (Ajzen, 1991), pro-environmental behavior may be related to a consumer's willingness to pay a high price for an environmentally friendly product. The barrier that restricts and has a negative effect on the intention to purchase is the high price. Customers who care more about the environment and are more environmentally conscious are willing to pay more for green items (Saut & Saing, 2021). Based on the previous literature, the following hypothesis will be tested in the current study.

H5 - There is a significant impact of Willingness to Pay on consumer purchase intention to traditional rice.

3. Methods

3.1. Conceptual Framework

Figure 7: Conceptual Frame Work
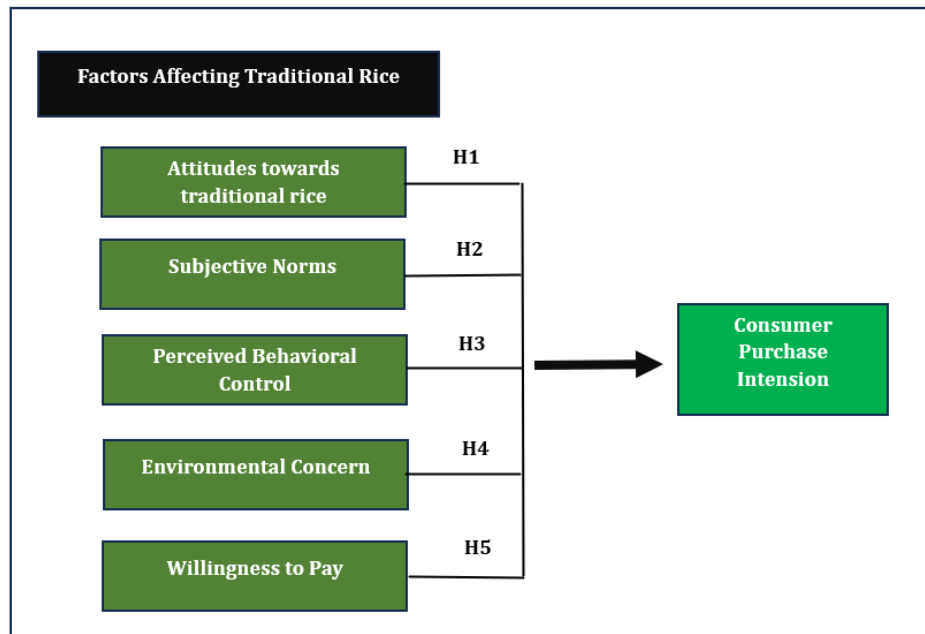
Source: Moeun & Tithdane (2021)

The conceptual model created for this investigation is shown in Figure 1. The impact of Attitudes, Subjective Norms, Perceived Behavioral Control, Environmental Concern, and Willingness to pay on Purchase Intention is predicted by this model as the independent variables, while purchasing intention is the dependent variable. The TPB model consists of three dimensions such attitudes, subjective norms, and perceived behavioral control. Moeun & Tithdane (2021) have modified the TPB model by adding environmental concern and willingness to pay as a new dimension.

The population components from which the sample is drawn are all represented (physically) in the sampling frame (Sekaran and Bougie, 2009). The study's sample frame is the supermarkets and Ayurvedic pharmacies where traditional rice is available in Sri Lanka and their number of customers. The researcher selected a quantitative research strategy because the current study develops strategies to evaluate and test the hypothesis. The population of the present study is millennial consumers in Sri Lanka. The 251 respondents are used as the sample size by using the random selection method; the researcher has randomly

selected 251 millennial consumers who have at least once purchased traditional rice in Sri Lanka are used as the sample size. The researcher follows simple random sampling as the sampling technique for the study.

4. Results and Discussion

4.1. Descriptive Statistics

The researcher has collected data from both male and female respondents by sharing the questionnaire through online platforms. Of 251 respondents (73.31%) are females, and (26.69%) are males. According to the findings 47.81% of the majority of respondents are employed in the private sector. Among these respondents, the second highest percentage, 33.07%, works for the government sector. The remaining 16.73% of respondents are self-employers, and 2.39% are students.   When considering the education level of respondents, the largest number 57.37%, are degree holders. Of these income levels, only 5.18% belong to the highest income level group. 14.34% of respondents earn between Rs.75000 – Rs.100000, and the other 7.97% belong to the lowest income level group. The researcher has gathered data proportionately from respondents in all nine provinces of Sri Lanka in an almost evenly distributed manner. As a result of generated descriptive statistics analysis tables, mean values are more than 03 and less than 05 for all five independent and dependent variables. It goes on to explain that variables are operating at a standard level. The standard deviations for all 6 variables are higher than 0.75 and less than 2. The data set can be considered congested because it has a significant high value. As a result, the data set has less variation**.

4.2. Reliability Analysis

Table 3 emphasize that Cronbach's Alpha values of all the independent variables and dependent variables are above 0.8. Therefore, each variable can be interpreted as a reliable variable.

Table 18: Cronbach's Alpha Value of Variables

Variable	Items	Cronbach's Alpha Value	Interpretation
Attitudes	04	.809	Good
Subjective Norms	04	.903	Excellent

Perceived Behavioral Control	03	.820	Good
Environmental Concern	04	.958	Excellent
Willingness to Pay	04	.941	Excellent
Traditional rice purchase intention	03	.960	Excellent

Source: (Survey Data, 2023)

4.3. Validity Analysis

Table 4 shows that the KMO value of attitudes, perceived behavioral control, and environmental concern is good, while subjective norms and willingness to pay have excellent KMO values. All four variables' Values for Bartlett's test of sphericity are under 0.05. All of the variables are significant, even though the variables' discriminant validity is high.

Table 19: KMO and Bartlett's test

Variable	KMO Values	Bartlett's Test of Sphericity Values	Number of Items	Interpretation
Attitudes	.778	0.000	4	Good
Subjective Norms	.828	0.000	4	Excellent
Perceived Behavioral Control	.626	0.000	3	Good
Environmental Concern	.766	0.000	4	Good
Willingness to Pay	.853	0.000	4	Excellent
Traditional rice purchase intention	.765	0.000	3	Good

Source: (Survey Data, 2023)

4.4. Correlation Analysis

Correlation can be measured using the Pearson correlation matrix. A perfect positive relationship between the two variables is shown by a Pearson correlation value of 1, while a perfect negative relationship is indicated by a value of 1. The values of $+1 > r > +0.75$, $+0.75 > r > +0.5$, and $+0.5 > r > 0$ denote higher and lower levels of positive connection, respectively. All the p-values are less than 0.005, indicating that all the variables are significant and have a strong correlation. Table 6 elaborates a moderately positive relationship between attitudes, subjective norms, perceived behavioral control, environmental concern, willingness to pay, and traditional rice purchase intention.

Table 5: Correlation Matrix
Note: * represents the 0.01 significance level

		Att	SN	PBC	EC	WP	CPI
Att	Pearson Correlation	1	.682**	.612**	.519**	.538**	.517**
SN	Pearson Correlation	.682**	1	.585**	.600**	.638**	.691**
PBC	Pearson Correlation	.612**	.585**	1	.601**	.562**	.680**
EC	Pearson Correlation	.519**	.600**	.601**	1	.673**	.588**
WP	Pearson Correlation	.538**	.638**	.562**	.673**	1	.591**
CPI	Pearson Correlation	.517*	.691**	.680**	.588**	.591**	1

Source: Survey Data, 2023

4.5. Multiple Regression Analysis

Based on Table 6, the R square value is 0.684, and it can be concluded that attitudes, subjective norms, perceived behavioral control, environmental concern, and willingness to pay may account for 69% of the variability in millennial customers' traditional rice purchase intentions. However, it was noted that other factors were not considered in the current study, which can account for 31% of variances in millennial customers' traditional rice buying intentions. The remaining factors can be presumed to include brand name, health benefits, and awareness, etc.

Table 20: The Modal Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.831[d]	.691	.684	1.339

Source: (Survey Data, 2023)

The ANOVA table examines all of the outcomes from the study's model and focuses on the significance of the results (Field, 2009). The p-value for the ANOVA test is displayed as 0.000. The null hypothesis (H0) can be rejected because the model is significant, whereas the alternative hypothesis (H1) can be accepted. It indicates that independent characteristics such as attitudes, subjective norms, perceived behavioral control, environmental concern, and willingness to pay considerably influence millennial consumers' intention to purchase traditional rice.

Table 21: ANOVA Test

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	980.510	5	196.102	109.393	.000[b]
	Residual	439.195	245	1.793		
	Total	1419.705	250			

Source: (Survey Data, 2023)

According to the statistical result of the coefficient table, attitudes can be identified as the most influential factor in traditional rice purchase intention, with the highest positive beta value of 0.473 and 0.000 of the p-value. The subjective norms influence on traditional rice purchase intention with a 0.306 beta value and 0.000 p-value. The perceived behavioral control have a 0.221 beta value and a 0.000 p-value that affect consumers' intentions to buy traditional rice. The environmental concerns influence traditional rice purchase intention with a 0.140 beta value and 0.001 of the p-value. The least influential factor in traditional rice purchase intention with the lowest positive beta value of 0.123 and 0.000 of the p-value.

Table 22: Coefficient Table

	Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	1.719	.514			.001
	Attitudes	.473	.040	.595	11.694	.000
	Subjective Norms	.306	.033	.425	9.149	.000
	Perceived Behavioral Control	.221	.057	.241	3.899	.000
	Environmental Concern	.140	.040	.208	3.496	.001
	Willingness to pay	.123	.032	.595	11.694	.000

Source: (Survey Data, 2023)

The findings represent that attitudes have a significant impact on traditional rice purchasing intention among millennial consumers in Sri Lanka. Maichum et al. (2016) stated that attitude was the best predictor of consumer intention toward the green product. Chen & Tung (2014) have found that according to the earlier body of information in the field of green marketing, attitude influences purchasing intention. Scalco, Noventa, Sartori, and Ceschi (2017) found that attitude was the most powerful incentive for consuming organic food. The researcher has investigated that subjective norms also significantly influence traditional rice purchasing intention among millennial consumers in Sri Lanka. As a result, it can be known that the influence of respondents' influential people, such as family members, friends and loved ones play a major role in predicting whether they tend to purchase traditional rice. The findings imply that millennial consumers' decision to purchase traditional rice is influenced by the peer pressure of their influential peers. Hasbullah et al. (2016) stated that there was a positive association between subjective norms and intention to shop online. Additionally, Wang (2014) confirmed the association between subjective norms and overall consumer purchase intention.

Hence, it can be concluded that Sri Lankan millennial customers significantly consider the subjective norms in the case of building intention to purchase traditional rice. Moreover, the perceived behavioral control significantly impacts traditional rice purchasing intention among millennial consumers in Sri Lanka. The perception of easiness helps millennial consumers decide whether or not to buy traditional rice. In other words, people are more likely to buy traditional rice if there are sufficient resources in terms of finance, time, and availability. Barbaross & Pelsmacker (2016) confirmed that perceived behavioral control (PBC) had proven to be an effective part of TPB in numerous research on sustainable consumption and green products. According to the current research findings, environmental concerns have a significant impact on millennial customers' intention to buy traditional rice in Sri Lanka. Customers who express concern about environmental issues are more likely to buy traditional rice that is grown organically. Environmental concern has a significantly favorable impact on green purchasing behavior toward the environment, according to Lee et al. (2014), Mostafa (2009), and Yadav and Pathak (2016).

Mostafa (2009) noted the significance of consumer concern for the environment, while Yadav and Pathak (2016) discovered that environmental concern has the most significant relationship with purchase intention. According to the findings, willingness to pay also has a significant impact on traditional rice purchasing intention among millennial consumers in Sri Lanka.

It was discovered that customer's willingness to pay a premium price is also a significant predictor of their intention to purchase packaged goods that are environmentally friendly (Prakash and Pathak 2017). The hypothesis can be tested using the B coefficient and p-value (sig level). To accept the hypothesis, the p-value at the 95% confidence interval must be equal to or less than 0.05, and the B coefficient must be positive.

H1 - There is a significant impact of attitudes on consumer purchase intention toward traditional rice.
Due to this independent variable's p-value of 0.000, which is less than 0.05, it is statistically significant. The beta value of the attitudes is 0.473. According to the positive beta value, the H1 can be accepted. Therefore, attitudes significantly impact millennial consumers' purchasing intention for traditional rice based on the multiple linear regression analysis.

H2 - There is a significant impact of Subjective Norms on consumer purchase intention for traditional rice.

The p-value of this independent variable is 0.000, and it is statistically significant because the p-value is less than 0.05. The beta value of the Subjective Norms is 0.306. According to the positive beta value, the H2 can be accepted. Therefore, Subjective Norms significantly impact on millennial consumers' purchasing intention for traditional rice based on the multiple linear regression analysis.

H3 - There is a significant impact of Perceived Behavioral Control on consumer purchase intention toward traditional rice.

Due to this independent variable's p-value of 0.000, which is less than 0.05, it is statistically significant. The beta value of the Perceived Behavioral Control is 0.221. According to the positive beta value, the H3 can be accepted. Therefore, Perceived Behavioral Control significantly impacts the millennial consumers' purchasing intention for traditional rice based on the multiple linear regression analysis.

H4 - There is a significant impact of Environmental Concerns on consumer purchase intention for traditional rice.

The p-value of this independent variable is 0.001, and is statistically significant because the p-value is less than 0.05. The beta value of the Environmental Concerns is 0.140. According to the positive beta value, the H4 can be accepted. Therefore, Environmental Concerns significantly impact on millennial consumers' purchasing intention for traditional rice based on the multiple linear regression analysis.

H5 - There is a significant impact of Willingness to Pay on consumer purchase intention to traditional rice.

The p-value of this independent variable is 0.000, and is statistically significant because the p-value is less than 0.05. The beta value of the Willingness to Pay is 0.123. According to the positive beta value, the H4 can be accepted. Therefore, Willingness to Pay significantly impacts on millennial consumers' purchasing intention for traditional rice based on the multiple linear regression analysis.

Table 09: Hypothesis Summary

Hypotheses		P-value	Result
H1	There is a significant impact of Attitudes on the purchase intention of millennial consumers to traditional rice.	.000	Accepted

H2	There is a significant impact of Subjective Norms on the purchase intention of millennial consumers of traditional rice.	.000	Accepted
H3	There is a significant impact of Perceived Behavioral Control on the purchase intention of millennial consumers to traditional rice.	.000	Accepted
H4	There is a significant impact of Environmental Concerns on the purchase intention of millennial consumers of traditional rice.	.001	Accepted
H5	There is a significant impact of Willingness to Pay on the purchase intention of millennial consumers to traditional rice.	.000	Accepted

Source: Survey Data, 2023

5. Conclusion

The current study was conducted to investigate the factors that impact the traditional rice purchasing intention of millennial consumers in Sri Lanka. The dimensions of TPB were used for analyzing customer intention combined with environmental concerns and willingness to pay. As a result, the researcher has followed a modified TPB model in the current study. The researcher identified an empirical, theoretical, and practical gap in the studied field to conduct this investigation. Accordingly, the researcher created a conceptual framework based on earlier literature to handle the research problem area. The following conceptual framework determines the impact of independent variables (attitudes, subjective norms, perceived behavioral control, environmental concern and willingness to pay) on the dependent variable (traditional rice purchasing intention). To meet the goals of the study, the researcher gathered data from 251 male and female millennial consumers who have at least occasionally eaten traditional rice. The data were gathered using a random sampling technique. The software SPSS version 21 was used to analyze the collected data. The researcher has analyzed the distribution of demographic characteristics of respondents using pie charts. Further, the variables were described numerically by descriptive statistics. According to the reliability test, Cronbanch's Alpha value and significant value represent the reliability of the current research instrument, while KMO and Bartlertt's tests have been used to measure the validity of the data set. The correlation and regression analyses were conducted to identify the relationship and impact between the variables. Eventually, the findings represent that attitudes, subjective norms, perceived

behavioral control, environmental concern, and willingness to pay significantly impact on millennial consumers' intention to purchase traditional rice.

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INFLUENCE OF SERVICE QUALITY ON STUDENT SATISFACTION: A CASE STUDY OF SAEGIS CAMPUS IN SRI LANKA

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Abstract

This study aims to assess the effects of service quality in student services on student satisfaction within the context of non-state universities in Sri Lanka. Specifically, the research focuses on Saegis Campus as a case study to explore the relationship between service quality and student satisfaction. By understanding the impact of service quality on student satisfaction, educational institutions can identify areas for improvement and enhance the overall student experience. The research has been conducted considering the Saegis campus as a population of the study, and the sample was elected as four hundred using probability sampling by considering the quantitative nature of the study. The independent variables, tangibility, reliability, responsiveness, assurance, and empathy, have been considered with the mediator variable of perceived service quality to find the influence on the dependent variable, student satisfaction. The data has been tested for reliability as well as validity at the initial level, and the hypotheses were tested based on the regression analysis. The study has been designed in a quantitative manner where the research instrument has been taken to collect the data was a structured questionnaire. The study recommends to the decision makers of the private educational institutes that tangibility, reliability, responsiveness, assurance as well as empathy impact service quality of student services on satisfaction among students in private universities in Sri Lanka. Therefore, the decision-makers of the private institutes should consider the said aspects when making decisions related to improving the service quality of student services to ensure student satisfaction among private universities in Sri Lanka.

Keywords: Higher education, non-state university, service quality, student satisfaction.

1. Introduction

Providing high-quality services to students is crucial for fostering satisfaction, engagement, and academic success in the educational sector. This research investigates the correlation between service quality in student services and student satisfaction in non-state universities in Sri Lanka, with a specific focus on the Saegis Campus. By conducting a case study, this study seeks to shed light on the significance of service quality and its impact on student satisfaction, aiding educational institutions in their pursuit of delivering excellent student services.

The higher education landscape in Sri Lanka has witnessed significant growth in the private sector, with the establishment of numerous private universities (Asian Development Bank, 2016). While this expansion is commendable, it also raises concerns regarding quality and cost (Ashraf, Ibrahim, and Joarder, 2009). Additionally, the global trend of education marketization has intensified competition in the sector, prompting institutions to vie for students and academic staff (De Jager and Gbadamosi, 2010). In this context, private campuses must strive to develop competitive advantages to attract and retain students while maintaining competitiveness. The heightened demand for higher education has increased expectations and fierce competition among institutions (Shahin and Samea, 2010).

To address these challenges, private universities need to focus on enhancing their service quality to differentiate themselves from competitors. By providing exceptional student services, these institutions can create a unique value proposition that attracts and satisfies students. The delivery of high-quality services encompasses various aspects, including administrative efficiency, academic support, facilities, faculty-student interactions, and overall student experience.

Investing in improving service quality not only leads to higher levels of student satisfaction but also contributes to the reputation and success of the institution. Satisfied students are more likely to recommend the university to others and become loyal advocates, which can positively impact the institution's enrolment and retention rates. Furthermore, developing competitive advantages should not be limited to academic aspects alone. Private universities must also focus on building strong industry connections, fostering a culture of innovation, and providing career development opportunities for students. These efforts contribute to creating a holistic educational experience that prepares students for the demands of the job market. The growth of private universities in Sri Lanka's higher education sector has brought both opportunities and challenges. To thrive in this competitive landscape, private campuses must prioritize

service quality and establish competitive advantages that set them apart., These institutions can attract and retain students by meeting and exceeding student expectations while maintaining their market position.

1.1. Research Problem

To attract and retain students, private universities in Sri Lanka need to differentiate themselves by offering unique value propositions. One potential avenue for achieving this is by providing quality services to students (De Jager and Gbadamosi, 2008). However, there is a lack of empirical research specifically focusing on private university students' perceptions of service quality (SQ), particularly in non-academic services (Raza, 2020). Therefore, there is a research gap in understanding private university students' perceptions of service quality and their satisfaction levels, specifically in the context of the Saegis Campus. This study aims to address this gap by employing a questionnaire-based approach to investigate private university students' perceptions of service quality and satisfaction at the Saegis Campus. By examining the students' perspectives on service quality and their levels of satisfaction, this research seeks to provide insights into the effectiveness of current services and identify areas for improvement. Ultimately, the findings of this study can contribute to enhancing the service quality provided by private universities and their ability to attract and retain students in the competitive higher education market.

1.2. Research Objectives

The objectives aim to explore the different dimensions of service quality within student services and understand their impact on student satisfaction in private universities in Sri Lanka. By specifically examining tangible, reliability, responsiveness, assurance, and empathy factors, the study seeks to gain a comprehensive understanding of the elements that contribute to service quality and ultimately influence student satisfaction. The findings will provide valuable insights for improving service quality in student services, enhancing the overall student experience, and strengthening private universities' ability to attract and retain students.

1.To identify, understand, and analyses tangible factors that impact the service quality of student services on satisfaction among students in Saegis Campus.

2.To analyze reliability factors that impact the service quality of student services on satisfaction among students in Saegis Campus

3.To analyze responsiveness factors that impact the service quality of student services on satisfaction among students in Saegis Campus.

4.To explore the assurance factors that impact the service quality of student services on satisfaction among students in Saegis Campus.

5.To analyze empathy factors that impact the service quality of student services on satisfaction among students among students in Saegis Campus

1.3. Research Questions

These research questions aim to investigate the specific impacts of different service quality factors on student satisfaction at Saegis Campus. By examining the influence of tangibles, reliability, responsiveness, assurance, and empathy on student satisfaction, the study seeks to gain a deeper understanding of how these factors contribute to the overall perception of service quality and student satisfaction. The findings will provide insights into the areas that require attention and improvement to enhance service quality and ultimately improve student satisfaction at Saegis Campus.

1.Do tangibles impact the service quality of student services on satisfaction among students in the Saegis Campus?

2.Does reliability impact the service quality of student services on satisfaction among students in Saegis Campus?

3.Does responsiveness impact the service quality of student services on satisfaction among students in Saegis Campus?

4.Does assurance impact the service quality of student services on satisfaction among students in Saegis Campus?

5.Does empathy impact service quality of student services on satisfaction among students in the Saegis Campus?

1.4. Significance of the Study

Saegis Campus is one of the leading institutions in Sri Lanka, having the 'degree awarding status 'of higher education, with students coming from many different areas of the country. The study is expected to reveal data that can lead to a better understanding of students who come to private universities for their higher education in an increasingly globalized higher education environment. University administrators may use the findings to understand student perceptions better. This could then be used to serve students better, which could help with recruitment and retention. This will also help administrators to focus on non-academic services needing SQ improvement.

1.5. Limitations of the Study

The researcher conducted the study with a limited sample size of a hundred respondents due to their availability and accessibility. Additionally, the researcher faced limitations in obtaining relevant past research papers and journals aligned with the study's objectives and scope.

2. Literature Review

2.1. Service Quality

Customer interaction and loyalty are greatly influenced by service delivery. Service industries strive to provide better customer satisfaction and fruitful interactions by incorporating high-quality aspects that meet customer needs and wants. Decision-makers and authorities within organizations prioritize implementing best practices and standards to establish strong customer relationships and gain a competitive edge in the business environment (Dabholkar, 2015). Ensuring superior service quality is crucial for differentiation and long-term business sustainability. Organizations can analyze competitors' service deliveries to identify areas of dissatisfaction and enhance their service quality across relevant parameters (Kaura, 2015).

Furthermore, organizations may seek to elevate service quality by pricing their goods and services at a premium in competitive markets to generate higher revenues in a shorter timeframe. The pricing strategies employed by organizations are closely tied to the quality of services offered, enabling them to maintain a competitive advantage that local or global competitors may struggle to match (Hussain, 2016).

Moreover, decision-makers within organizations prioritize activities related to service quality to cater to customer preferences, allowing customers to choose the best options available. Differentiation through service delivery is crucial for brand positioning and revenue generation (Farooq, 2018). Additionally, organizations recognize the importance of service quality in establishing customer relationships and increasing market share in a competitive environment. Happy customers who experience superior service and an emotional connection tend to remain loyal to the brand, contributing to a higher market share. Furthermore, optimal service quality has a positive impact on productivity, advertising, and distribution (Arcand, 2017).

2.2. Student Satisfaction

Consumer satisfaction is defined as their perception that their consumption produces results that measure up to a benchmark of pleasure against pain. (P.34,

Oliver, 1999). Recently, the idea of contentment has also been extended to the setting of higher education. According to the few research that is currently available, student happiness is a multifaceted notion (Marzo-Navarro et al. 2005ab; Richardson, 2005). Elliott and Shin (2002, p. 198) define student satisfaction as the favourability of a student's subjective judgment of the many experiences and outcomes involved with education, drawing on Oliver and DeSarbo's (1989) definition of satisfaction. Repeated encounters with campus life continuously shape students' satisfaction levels (Gruber, Fuß, Voss, & Glaeser-Zikuda, 2010).

2.3. Service Quality in the Education Sector

In the education sector, decision-makers recognize the importance of service quality and focus on various aspects to ensure a positive experience for students. Assurance is a key factor, as educational institutes aim to build confidence and trust among students, demonstrating their commitment to students' best interests. Politeness and respect are emphasized in interactions with students, parents, and corporate entities. Empathy is another crucial aspect, with educational firms prioritizing caring approaches and meeting customer needs. The education industry emphasizes service quality throughout the student journey, from entry to graduation and beyond. Tangibility is also considered, encompassing physical facilities such as clean classrooms, well-equipped labs, and a conducive study environment. Decision-makers in the education sector pay attention to these tangible aspects of service quality to enhance the overall experience for students (Gong, 2018; Fatima, 2018).

Decision makers in the education sector prioritize reliability by ensuring that services provided have a strong foundation of positive service quality. Educational institutes focus on delivering accurate services, responding promptly to requests, and fulfilling promises made to students and stakeholders. These reliable aspects contribute to the overall service quality in the educational sector (Gupta, 2018). Additionally, responsiveness is emphasized as an important aspect of service quality. Educational organizations are willing to assist customers effectively and take swift action to rectify any instances of poor service. They aim to minimize waiting times and prioritize rapid service delivery to enhance service quality in the education sector (Choi, 2020).

2.4. SERVQUAL Model

Nunkoo and Teeroovengadum (2019) developed the SERVQUAL model as an analytical tool to measure service quality (SQ) and its impact on customer satisfaction. However, scholars have raised concerns about the model. Psychometric issues were identified regarding SERVQUAL's difference score, and operationalizing the anticipation module was debated. Some argued that the

model's five dimensions may not be applicable in different settings due to a lack of economic, statistical, and psychological background. Additionally, the word "excellent" in the model's outlook segment raised concerns about participants choosing the highest scale score, leading to an emphasis on ideal expectations rather than realistic ones. The SERVPERF model was introduced, removing the expectations factor To address these concerns. The SERVPERF model has been extensively used to measure perceived SQ in sectors like banking, hotels, and education, demonstrating high reliability and validity. In the higher education, the SERVPERF model has shown a positive relationship between perceptions of SQ and student satisfaction, with reliability being the strongest predictor, followed by responsiveness, empathy, assurance, and tangibility. Numerous studies using the SERVPERF model have yielded reliable outcomes in measuring the correlation between SQ and satisfaction (Pham, 2019; Rather, 2019).

3. Methodology

3.1. Introduction

The methodology provides a detailed description of the current research design, data collection, and analysis procedures employed in the study. It serves as a roadmap that outlines how the research objectives will be addressed and provides transparency in the research process. This section further elaborates on the reliability and validity of the study's findings.

3.2. Conceptual Framework of the Study

Figure 3.1- Conceptual framework

3.3. Hypotheses of the Study

H10: Tangibles impact on service quality of student services on satisfaction among students in Saegis Campus

H20: Reliability impact on service quality of student services on satisfaction among students in Saegis Campus

H30: Responsiveness impact on service quality of student services on satisfaction among Saegis Campus

H40: Assurance impact on service quality of student services on satisfaction among students in Saegis Campus

H50: Empathy impact on service quality of student services on satisfaction among students in Saegis Campus

3.4. Operationalization

Table 1: Operationalization

No	Variables	Indicators	Measurements	Q No
1	Tangibles	Equipment availability	1- 5 Likert Scale	1.1-1.4
		Lectures availability		
		Communication materials		
		Physical look		
2	Reliability	Deliver promises	1- 5 Likert Scale	2.1-2.4
		Trust on institute		
		Career opportunity		
		Accurate services		
3	Responsiveness	Help the students	1- 5 Likert Scale	3.1-3.4
		Provide prompt service		
		Availability for services		
		Rapidly responding		
4	Assurance	Knowledge of the employees	1- 5 Likert Scale	4.1-4.4
		Courtesy of employees		
		Convey the trust		
		Confidence of the students		
5	Empathy	Care towards students	1- 5 Likert Scale	5.1-5.4
		Individualized attention		
		Flexible in payments		
		Understand the needs		
6	Perceived service quality	More than expected services	1- 5 Likert Scale	6.1-6.4
		Available of physical instruments		
		Lecture availability		
		Students believe in the institute		
7	Satisfaction	Service innovations	1- 5 Likert Scale	7.1-7.4
		Consistency in customer services		
		Value-added services		
		Quality of the service		

3.5. Research Design

The study was designed as a primary research methodology due to the limited availability of relevant secondary data aligned with the study's objectives. The researcher opted for a quantitative approach, considering the nature of the study and the need to collect data from a large sample size. This choice allowed for firsthand data collection, ensuring the research objectives could be effectively addressed.

3.6. Research Instrument

Within the framework of a quantitative research methodology, the researcher has chosen to employ a questionnaire as the data collection tool in accordance with the study's objectives. The structured questionnaire has been carefully designed to encompass all relevant variables and facilitate the provision of insightful recommendations to decision-makers. To ensure convenience and accessibility, data collection was conducted through an online medium.

3.7. Population and Sample

The research study focuses on the population, which refers to a collective group sharing similar characteristics. The population represents the entire cluster of entities under investigation. This study identifies the population as Saegis Campus, consisting of approximately 1,500 students. To ensure practicality and feasibility, a sample size of 400 participants was selected based on the specific characteristics and availability of respondents. The sample serves as a representative subset of the population with similar characteristics.

3.8. Sampling Technique

The study employs two main sampling techniques: probability sampling and non-probability sampling. Probability sampling ensures that all sample elements have an equal chance of being selected, typically using random sampling. This technique is commonly used in quantitative research methodologies. On the other hand, non-probability sampling involves selecting sample elements based on the researcher's convenience or judgment, and it is often utilized in qualitative methodologies. For the current study, probability sampling was chosen due to the quantitative nature of the research, aligning with the research methodology.

3.9. Data Analysis

Data analysis is done through SPSS as it offers a range of statistical techniques and tools that allow researchers to explore, summarize, and draw conclusions from their data. The researchers performed statistical analyses, including descriptive statistics, inferential statistics, correlation analysis, regression analysis, and data visualization, by leveraging the capabilities of SPSS to support the research objectives.

4. Presentation of findings

4.1. Introduction

This section focuses on the collected data from the fieldwork, aligned with the research objectives. The independent variables of tangibility, reliability, responsiveness, assurance, and empathy are analysed in relation to the mediator variable of perceived service quality and the dependent variable of satisfaction. The data undergoes reliability and validity testing, and the findings are presented in tables and graphs for clarity and explanation. Additionally, the relationships between the variables are examined through correlation and regression analyses to test the hypotheses and provide recommendations for decision-makers.

4.2. Measuring the Reliability of the Variables

Data reliability refers to the dependability and consistency of the data, which is essential for effective data analysis and making recommendations to decision-makers. This study assesses data reliability using Cronbach's Alpha test, which assigns a value between zero and one. If Cronbach's Alpha value exceeds 0.5, the data is reliable and can be used to test the relationships between variables. This assessment ensures the data's credibility and provides a foundation for meaningful analysis and accurate conclusions for decision-makers and stakeholders.

Table 2: Reliability

Attributes	Cronbach's Alpha
Tangibility	.884
Reliability	.902
Responsiveness	.907
Assurance	.884
Empathy	.833

Perceived service quality	.940
Satisfaction	.911

Source: Output of Data Analysis

Table 2 confirms the consistency and reliability of the data for various variables, including tangibility, reliability, responsiveness, assurance, empathy, perceived service quality, and satisfaction. The Cronbach's Alpha value, exceeding 0.5, provides further evidence of the data's reliability. This validation reinforces the researcher's confidence in the data's quality and allows for meaningful analysis and interpretation of the study's findings.

4.3. Measuring the Validity of the Variables

Data validity is crucial to assess the rationality and appropriateness of the data for further analysis and making effective recommendations to decision-makers. This study evaluates data validity using the KMO (Kaiser-Meyer-Olkin) test, which yields values ranging from zero to one. A KMO value above 0.5 indicates that the data is valid and suitable for testing relationships between variables. Upon reviewing the table, the researcher confirmed the consistency and validity of the data for variables such as tangibility, reliability, responsiveness, assurance, empathy, perceived service quality, and satisfaction. The KMO value exceeding 0.5 further supports the data's validity, providing a solid foundation for testing variable relationships and drawing meaningful conclusions.

Table 3: Validity Test Results

Variable	KMO	Bartlett's Measure of Sphericity		
		Chi-Square Value	p- value	Significance
Tangibility	.835	871.176	<0.05	Significant
Reliability	.831	1043.000	<0.05	Significant
Responsiveness	.850	1060.335	<0.05	Significant
Assurance	.831	894.776	<0.05	Significant
Empathy	.690	777.740	<0.05	Significant

Perceived service quality	.867	1466.691	<0.05	Significant
Satisfaction	.853	1282.250	<0.05	Significant

Source: Output of Data Analysis

4.4. Factor Analysis

4.4.1. Tangibility

Table 4: Factor Analysis for Tangibility

Constituent	Preliminary Eigen amount			Withdrawal Amounts of Squared		
	Overall value	% of Alteration	Growing %	Overall value	% of Alteration	Growing %
1	2.968	74.207	74.207	2.968	74.207	74.207
2	.401	10.023	84.230			
3	.330	8.262	92.492			
4	.300	7.508	100.000			

Source: Output of Data Analysis

The factor analysis has been proven to the researcher as the data was extracted in 74% of the variable tangibility in single loaded manner.

4.4.2. Reliability

Table 5: Factor Analysis for Reliability

Constituent	Preliminary Eigen amount			Withdrawal Amounts of Squared		
	Overall value	% of Alteration	Cumulative %	Overall value	% of Alteration	Cumulative %
1	3.096	77.399	77.399	3.096	77.399	77.399
2	.405	10.131	87.531			
3	.270	6.747	94.277			
4	.229	5.723	100.000			

Source: Output of Data Analysis

The factor analysis has been proven to the researcher as the data was extracted in 77% of the variable Reliability in single loaded manner.

4.4.3. Responsiveness

Table 6: Factor Analysis for Responsiveness

Constituent	Preliminary Eigen amount			Withdrawal Amounts of Squared		
	Overall value	% of Alteration	Cumulative %	Overall value	% of Alteration	Cumulative %
1	3.127	78.181	78.181	3.127	78.181	78.181
2	.337	8.429	86.610			
3	.303	7.585	94.195			
4	.232	5.805	100.000			

Source: Output of Data Analysis

The factor analysis has been proven to the researcher as the data was extracted in 78% of the variable Responsiveness in a single loaded manner.

4.4.4. Assurance

Table 7: Factor Analysis for Assurance

Constituent	Preliminary Eigen amount			Withdrawal Amounts of Squared		
	Overall Value	% of Alteration	Cumulative %	Overall Value	% of Alteration	Cumulative %
1	2.973	74.334	74.334	2.973	74.334	74.334
2	.419	10.465	84.798			
3	.358	8.940	93.739			
4	.250	6.261	100.000			

Source: Output of Data Analysis

The factor analysis has been proven to the researcher as the data was extracted in 74% of the variable Assurance in a single loaded manner.

4.4.5. Empathy

Table 8: Factor Analysis for Empathy

Constituent	Preliminary Eigen amount			Withdrawal Amounts of Squared		
	Overall value	% of Alteration	Cumulative %	Overall value	% of Alteration	Cumulative %
1	2.672	66.791	66.791	2.672	66.791	66.791

2	.801	20.033	86.824			
3	.272	6.797	93.620			
4	.255	6.380	100.000			

Source: Output of Data Analysis

The factor analysis has been proven to the researcher as the data was extracted in 66% of the variable Empathy in a single loaded manner.

4.4.6. Perceived Service Quality

Table 9: Factor Analysis for Perceived Service Quality

Constituent	Preliminary Eigen amount			Withdrawal Amounts of Squared		
	Overall value	% of Alteration	Cumulative %	Overall value	% of Alteration	Cumulative %
1	3.394	84.853	84.853	3.394	84.853	84.853
2	.228	5.709	90.562			
3	.205	5.113	95.674			
4	.173	4.326	100.000			

Source: Output of Data Analysis

The factor analysis has been proven to the researcher as the data was extracted in 84% of the variable Perceived service quality in a single loaded manner.

4.4.7. Satisfaction

Table 10: Factor Analysis for Satisfaction

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.253	81.334	81.334	3.253	81.334	81.334
2	.366	9.139	90.473			
3	.198	4.955	95.428			
4	.183	4.572	100.000			

Source: Output of Data Analysis

The factor analysis has been proven to the researcher as the data was extracted in 81% of the variable Satisfaction in a single loaded manner.

The demographic characteristic of age among the respondents indicates a notable majority, with approximately 80% of the overall sample falling within the age range of 18 to 24. The gender distribution among the respondents reveals a significant majority, with approximately 57% of the overall sample being female.

Regarding the programs pursued by the respondents, a significant majority, comprising approximately 43% of the overall sample, were enrolled in an advanced diploma in business. The research also encompassed participants from diverse programs, indicating a comprehensive representation within the study.

4.5. Descriptive Statistics

Table 11: Descriptive Statistics

	Tangibility	Reliability	Responsiveness	Assurance	Empathy	Perceived service quality	Satisfaction
Mean	4.11	4.11	4.24	4.16	3.98	3.85	3.96
Standard Error	0.022698	0.023276	0.021625	0.021691	0.024025	0.026132	0.028668
Median	4	4	4	4	4	4	4
Mode	5	5	5	5	4	4	5
Standard Deviation	0.920314	0.943765	0.87681	0.879476	0.97411	1.059573	1.162394
Sample Variance	0.846977	0.890692	0.768795	0.773478	0.94889	1.122696	1.351159
Kurtosis	0.507683	0.618514	0.823347	0.402587	0.359623	-0.02616	0.876169
Skewness	-0.93329	-0.98567	-1.06423	-0.86829	-0.82949	-0.73848	-0.29914
Range	4	4	4	4	4	4	7
Minimum	1	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5
Maximum	5	5	5	5	5	5	5

Source: Output of Data Analysis

The selected educational institute's mean scores for tangibility, reliability, responsiveness, assurance, empathy, perceived service quality, and satisfaction were found to be 4.11, 4.11, 4.24, 4.16, 3.98, 3.85, and 3.96, respectively. The corresponding standard deviations were 0.920314, 0.943765, 0.87681, 0.879476, 0.97411, 1.059573, and 1.162394. The median and mode scores for all variables at the institute were five. The standard errors were 0.022698, 0.023276, 0.021625, 0.021691, 0.024025, 0.026132, and 0.028668 for tangibility, reliability, responsiveness, assurance, empathy, perceived service quality, and satisfaction, respectively. Skewness values were -0.93329, -0.98567, -1.06423, -0.86829, -0.82949, -0.73848, and -0.29914, while kurtosis values were 0.507683, 0.618514, 0.823347, 0.402587, 0.359623, -0.02616, and 0.876169, indicating the distribution characteristics of the collected data. The sample variances were calculated as 0.846977, 0.890692, 0.768795, 0.773478, 0.94889, 1.122696, and 1.351159 for tangibility, reliability, responsiveness, assurance, empathy, perceived service quality, and satisfaction, respectively.
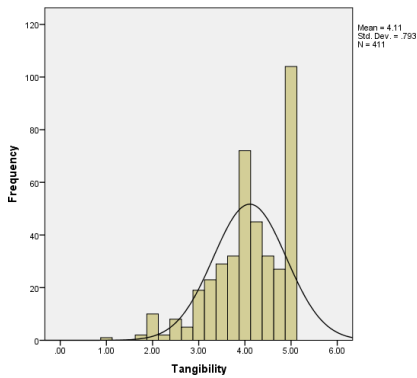
4.5.1. Descriptive Analysis

Regarding tangibility, respondents agreed that the institute possesses adequate study-oriented equipment, accessible staff and lecturers, advanced communication materials, and an appealing physical appearance compared to other institutes. In terms of reliability, respondents agreed that the institute fulfils its promises, instils trust in students and lecturers, and offers courses that facilitate career development. In terms of responsiveness, respondents agreed that the institute's staff and lecturers are helpful and provide prompt service, responding promptly to student inquiries. In relation to assurance, respondents agreed that the institute's employees and lecturers possess sufficient knowledge, exhibit courtesy, and inspire trust among students. Regarding empathy, respondents agreed that the institute demonstrates care for its students, offers individualized attention from lecturers, and understands student needs and preferences. Regarding perceived service quality, respondents agreed that the institute exceeds their expectations, provides excellent customer service, and meets students' requirements. Finally, in terms of satisfaction, respondents agreed that the institute demonstrates service innovation, maintains consistency in customer service, offers value-added services, and provides high-quality service compared to competitors in the market.

4.5.2. Tangibility

A normal distribution has been observed in the histogram presented above, depicting the variable of tangibility. Furthermore, the calculated skewness value from the descriptive table reveals a notable negative value of -0.933288236.
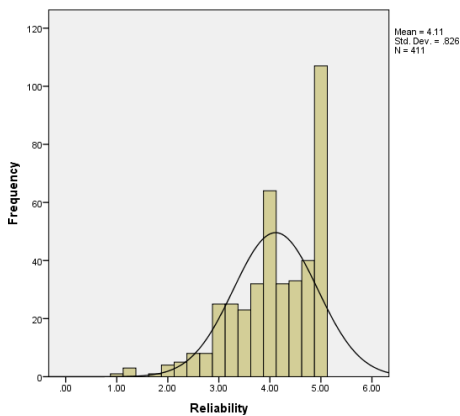
Figure 1: Histogram- Tangibility

Source: Output of Data Analysis

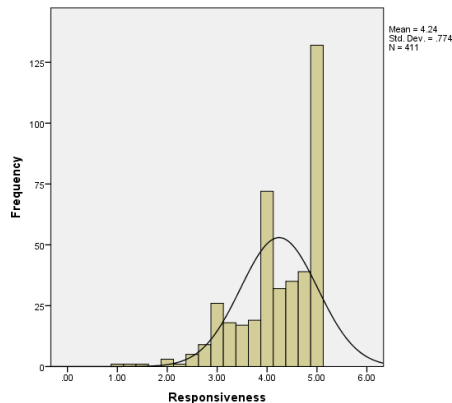### 4.5.3. Reliability

Figure 2: Histogram- Reliability

Source: Output of Data Analysis

The above histogram illustrates that the variable of Reliability follows a normal distribution. Moreover, the descriptive table reveals a skewness value of -0.98567, indicating a significant negative skew.

4.5.4. Responsiveness
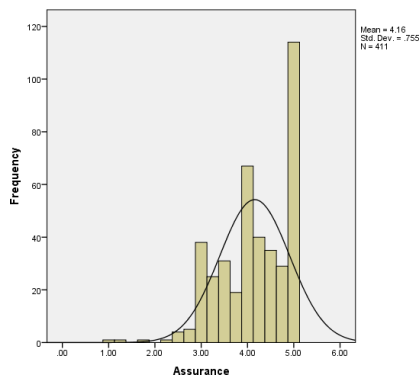
Figure 3: Histogram- Responsiveness

Source: Output of Data Analysis

The histogram presented above indicates that the variable of Responsiveness exhibits a normal distribution. Furthermore, the descriptive table reveals a skewness value of -1.064231229, signifying a substantial negative skew.

4.5.5. Assurance

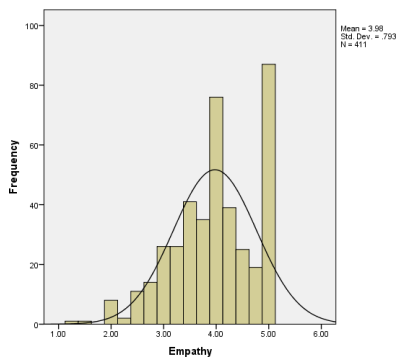**Figure 4: Histogram- Assurance**

Source: Output of Data Analysis

The histogram shown above suggests that the variable of Assurance follows a normal distribution. Additionally, the descriptive table reveals a skewness value of -0.868287716, indicating a noticeable negative skew.

4.5.6. Empathy

Figure 5: Histogram- Empathy

Source: Output of Data Analysis

A normal distribution has been attained as per the above histogram for the variable of empathy. In addition, the skewness value as per the descriptive table was observed as -0.829486707

4.5.7. Perceived Service Quality

A normal distribution has been attained as per the above histogram for the variable of perceived service quality. In addition, the skewness value as per the descriptive table was noticed as -0.738476278

Figure 6: Histogram - Perceived Service Quality

Source: Output of Data Analysis

4.5.8. Satisfaction

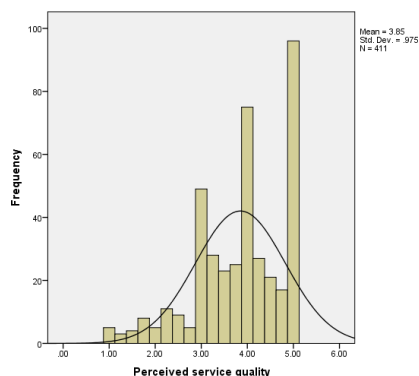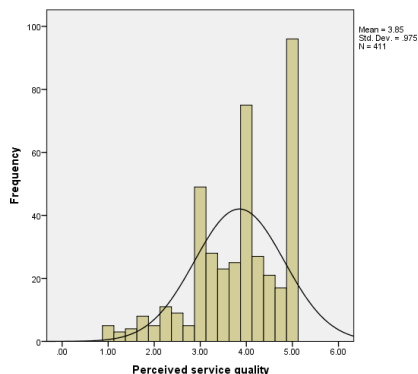There is a normal distribution has been attained as per the above histogram for the variable of Satisfaction.

In addition, the skewness value as per the descriptive table also noticed as -0.299135925.

Figure 7: Histogram – Satisfaction

Source: Output of Data Analysis

5. Discussion of Findings in Relation to Literature

This summary discusses the use of SERVQUAL and SERVPERF models to assess service quality and its relationship with customer satisfaction. The SERVPERF model originates from the SERVQUAL model, and both models consider service quality as a determinant of customer satisfaction. This study employs a modified version of the SERVPERF model as the conceptual framework. The SERVPERF model evaluates customer perceptions across five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. These dimensions collectively define the quality of service experienced by customers. The perceived overall quality derived from these dimensions is utilized to predict or indicate customer satisfaction.

5.1. Findings and Literature

A correlation test was performed to examine the relationships between the variables in the study. The assessment included calculating the Pearson correlation coefficient and determining the significance level for each independent variable, as well as the mediator and dependent variables.

5.2. Correlations

Table 8: Correlation Test

		Tangibility	Reliability	Responsiveness	Assurance	Empathy	Perceived service quality	Satisfaction
Tangibility	Pearson Correlation	1	.856**	.801**	.788**	.659**	.485**	.482**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	411	411	411	411	411	411	411
Reliability	Pearson Correlation	.856**	1	.851**	.839**	.669**	.516**	.521**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	411	411	411	411	411	411	411
Responsiveness	Pearson Correlation	.801**	.851**	1	.883**	.691**	.517**	.559**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	411	411	411	411	411	411	411
Assurance	Pearson Correlation	.788**	.839**	.883**	1	.767**	.572**	.607**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	411	411	411	411	411	411	411
Empathy	Pearso n	.659**	.669**	.691**	.767**	1	.837**	.809**

	n Correlation							
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	411	411	411	411	411	411	411
Perceived service quality	Pearson Correlation	.485**	.516**	.517**	.572**	.837**	1	.861**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	411	411	411	411	411	411	411
Satisfaction	Pearson Correlation	.482**	.521**	.559**	.607**	.809**	.861**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	411	411	411	411	411	411	411

Source: Output of Data Analysis

Upon observing the table, it becomes evident that a relationship exists between the variables of tangibility and perceived service quality at the educational institute, with a Pearson correlation coefficient of 0.485. The hypotheses pertaining to the relevant variables are presented below.

H10: The researcher concludes that tangibility has a positive impact on the service quality of student services, leading to increased satisfaction among students. Decision-makers in private institutes should focus on tangibility aspects in their decision-making activities to enhance service quality and improve student satisfaction in private universities in Sri Lanka. Emphasizing physical aspects that align with service-oriented activities is crucial for global service organizations, as it improves the practices of employees and enhances the reliability of services provided (Gregory, 2019).

H20: The researcher asserts that reliability has a positive impact on the quality of student services, resulting in increased satisfaction among students. Decision-makers in private institutes should consider reliability aspects in their decision-making activities to enhance service quality and improve student satisfaction. Consistency in service delivery is crucial for organizations relying heavily on

services, as direct customer interactions and service consistency contribute to customer loyalty and sustainable relationships in a competitive environment (Ibrahim, 2019).

The provided table shows a relationship between the variables of responsiveness and perceived service quality at the educational institute, with a Pearson correlation coefficient of 0.485. The hypotheses pertaining to these variables are presented below.

H30: The researcher posits that responsiveness positively impacts the service quality of student services, leading to increased student satisfaction in private universities in Sri Lanka. Decision-makers in private institutes should consider responsiveness aspects in their decision-making activities to enhance service quality and improve student satisfaction. Responsiveness in service organizations plays a crucial role in making customers feel cared for and receiving relevant services, fostering a strong business relationship.

H40: The researcher suggests that assurance positively impacts the service quality of student services, leading to increased student satisfaction in private universities in Sri Lanka. Decision-makers in private institutes should prioritize assurance aspects in their decision-making activities to improve service quality and enhance student satisfaction. Organizations can guarantee their services, either before or after sales, aligning with the scope and needs of their business activities.

H50: The researcher asserts that empathy positively impacts the service quality of student services, resulting in increased student satisfaction in private universities in Sri Lanka. Decision-makers in private institutes should emphasize empathy in their decision-making activities to enhance service quality and improve student satisfaction. Understanding and compassion towards customers are essential in in-service organizations, particularly for firms engaged in pure-service business activities, as it contributes to uplifting the quality of services provided.

6. Conclusion

The study explores the relationships between tangibility, reliability, responsiveness, assurance, empathy, service quality, and student satisfaction in private universities in Sri Lanka. Positive correlations are found between tangibility and service quality ($r = 0.482$), reliability and service quality ($r = 0.621$), responsiveness and service quality ($r = 0.669$), assurance and service quality ($r = 0.607$), and empathy and service quality ($r = 0.809$). The recommendations suggest that decision-makers should focus on improving tangibility, reliability, responsiveness, assurance, and empathy to enhance

service quality and student satisfaction. Future research is suggested to include additional service quality factors, qualitative methodologies, comparisons across service industries, and studies in different regional sectors.

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TRACK VI- TOURISM AND ECO-BUSINESS MANAGEMENT

FACTORS AFFECTING EMPLOYEES' INTENTION FOR IMPLEMENTING GREEN PRACTICES WITH SPECIAL REFERENCE TO PEOPLE'S BANK IN RATHNAPURA DISTRICT

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Abstract

Green banking is the green management practice in the banking industry which helps the banks to enjoy cost-effectiveness while positively contributing to the sustainability of the environment. Predicting behaviors is particularly important in the field of environmental management because the environment is greatly influenced by human behavior. The purpose of this research is to identify the factors affecting employees' willingness to embrace green practices at People's Bank in the Rathnapura district. The preliminary study of the current context has proved that there is less attention to implementing green practices among the employees who are currently working at People's Bank in the Rathnapura district. Therefore, the researcher decided to reveal the factors that impact on the intention to implement green practices among the employees in the present context. The researcher has selected four factors based on the Extended Theory of Planned Behavior Model (ETPB) and the findings of empirical studies. Current study followed a deductive approach with the positivist paradigm, and selected factors were tested with the support of the survey questionnaire. The data was collected from 291 employees working in People's Bank in Rathnapura district by applying the census method, and mainly regression analysis was used as the analytical tool to analyze the collected data. Results indicated that the three factors, such as perceived behavior control, subjective norm, and environmental knowledge positively impact on employees' intention to implement green practices except for employees' attitudes in the present context. Based on these results, the researcher recommends that the People's Bank to take appropriate strategies to improve the employees' positive attitudes towards behavior, which is the major construct of pro-environmental behavior.

Keywords*:* living behavior, environmental knowledge, green banking, intention to implement green practices, theory of planned behavior.

1. Introduction

Green practices require the joint effort of every worker and unit in a firm, all of whom must be committed to achieving improved environmental performance (Yuriev et al., 2018). The process of 'greening' is human capital intensive and depends on employees' development of tacit skills. Ones and Dilchert (2012) defined employee green behaviors as "scalable actions and behaviors that employees engage in or bring about that is linked with, and contribute to, environmental sustainability". This definition involves both involuntary (required by the company) and voluntary employee green behaviors. Norton et al. (2015) define required employee green behaviors as "green behavior performed within the context of employees' required job duties. This includes adhering to organizational policies, changing work methods, including choosing responsible alternatives, and creating sustainable products and processes".

Since green banking is emerging rapidly in developing countries, their dire need now is to adopt green banking practices that would ultimately result in saving the environment and its resources, and that would bring about several benefits such as reduced carbon footprints, reduced cost, and time resources and creating new opportunities for innovations to their business/investment (Shaumya & Arulrajah, 2016). These benefits are that Sri Lankan banks have more opportunities to enter global markets.

Sometimes government organizations are less effective in adopting dynamic changes in both internal and external environments compared to private organizations, which is a myth in the present society in Sri Lanka. Shaumya and Arulrajah (2016) explored the green banking practices followed by private banks in Sri Lanka to develop an instrument to measure the green banking concept/practices. Thus, the researcher thinks it is worthy of conducting this study at a government bank rather than a private bank in Sri Lanka. Further, People's Bank implements sound green management practices that help to measure, manage and mitigate environmental footprints and achieve their aspirations for a greener future. Moreover, the Researcher has given 35 questionnaires to randomly selected employees who are working in People's Bank in Rathnapura district to identify their willingness to implement the established green practices in People's Bank in Rathnapura district. The researcher used the scale of intention to implement the green practice developed by Bouarar (2021). This scale is 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). The results of the preliminary survey indicated that there was less willingness to implement the established green banking practices in People's Bank. Survey results indicated that a mean value of 2.25 is in the range of disagree (Preliminary Survey, 2022). Therefore,

it provides empirical evidence that there's a problem of willingness to implement the established green practices in People's Bank in Rathnapura district.

In addition, the researcher conducted two preliminary interviews with People's Bank Branch Managers in Rathnapura district. A Manager who worked in Super Grade Brach in Rathnapura district shared his experience willingly with the researcher, which is given below.

"Most of the employees in my branch were not voluntarily engaging with green policies and practices initiated by the bank because of their poor knowledge of those policies and practices. Further, sometimes with their busy schedules, they missed following those practices purposefully."

Another Manager who worked in a Pawning Center in Rathnapura district shared his experience with the researcher, which is given below.

"Since the banking sector is not directly involved in negative environmental impact, the employees give less attention to the environmental practices in the banking sector. So, with that mindset even though the bank implemented good environmental-friendly practices, it is very difficult to follow those practices."

In sum, the aforementioned knowledge, the preliminary results, and the comments encouraged the present researcher to investigate why People's Bank employees have less intention to implement green practices. (With special reference to People's Bank in Rathnapura district).

The researchers provide several frameworks based on the Theory of Planned Behavior (TPB) for identifying employees' behavioral intention to implement green practices in the workplace. The Planned Behavior Theory directly considered 3 independent variables, such as attitude toward behavior, subjective norm, perceived behavior control, and behavioral intention as a dependent variable. Bouarar and Mouloudj (2021) used the Extended Theory of Planned Behavior (ETPB) to explore factors influencing the employees' intention to implement green practices. Chan and Hon (2020) investigate the ecological behavior intentions of employees in the food and beverage industry based on the extended TPB model.

The original TPB does not include the environmental knowledge variable used to determine the behavioral intention of people. Knowledge is a precondition of any attitude formation and decision-making (Kim et al., 2018; Chan et al., 2014). Therefore, when lacking environmental knowledge, it is difficult for individuals to be conscious of the environmental issues and the environmental

consequences of their behaviors. The findings showed environmental knowledge significantly affected the ecological behavior of employees' intention to implement green practices (Liobikiene & Poškus, 2019; Kim et al., 2018). Therefore, the researcher adds environmental knowledge to the framework as an independent variable and integrates it with TPB constructs to identify employees' intention to implement green practices in People's Bank in Rathnapura district.

2. Literature Review and Hypotheses

2.1 Intention to Implement Green Practices in the Banking Sector

Chan and Hon (2020) defined ecological behavior intention as "the intention to act in an environmentally responsible way to contribute toward environmental preservation and/or conservation." Green banking practices are described as the means of reducing the carbon footprint arising from banking activities and promoting environmentally friendly practices (Wijethunga, 2018).

2.2 Theoretical Background of the Research Study

Theory of Planned Behavior (TPB) since its development some 30 years ago, shown to be an effective approach to explaining human behavior (Yuriev et al., 2020), and it is one of the most outstanding approaches for explaining environmental behavior within work context (Unsworth et al., 2013). The application of the TPB to determine factors associated with intentions to implement green practices has been demonstrated in many studies using empirical research methods. For example, Greaves et al. (2013) used the theory to study environmental behavioral intentions in a workplace setting. Dixon et al. (2015) applied the TPB as the theoretical research framework to investigate the determinants of behavioral intentions toward energy conservation behavior among faculty, staff, and graduate students working at a university. Gao et al. (2017) used the extended TPB to understand employees' intention to save energy in workplaces. Yuriev et al. (2020) applied the TPB to identify the importance of psychosocial and organizational factors influencing employees' intentions to engage in pro-environmental behaviors in the workplace. Chan and Hon (2020) used the TPB model to establish the relationship between environmental concern, the constructs of TPB, two extended constructs (psychological ownership of the company and sense of responsibility), and employee behavioral intention to implement environmental measures. Moreover, Weerarathna et al. (2017) stated that the planned behavior model is an effective tool to impose green and sustainable practices among Sri Lankan service sector employees, and the effectiveness of the innovation adoption model in the diffusion of green and sustainable practices among employees was

not evident in Sri Lankan context. Thus, a model of the theory of planned behavior (TPB) has been applied to investigate the factors that have affected employees' intention to implement green practices in People's Bank in Rathnapura district.

2.3 Factors (Attitude towards Behavior, Subjective Norm, Perceived Behavioral Control, Environmental Knowledge) Affecting Employees' Behavioral Intention to Implement the Green Practices

Some previous studies have investigated the factors affecting employees' pro-environmental behavioral intentions (Bouarar, 2021; Chan & Hon., 2020; Norton et al., 2015; Shafique et al., 2020), such as the influence of Theory of Planned Behavior constructs (Greaves et al., 2013; Sawitri et al., 2015), knowledge, awareness, and concern (Chan et al., 2014), psychosocial and organizational factors (Yuriev et al., 2020). Customer pressure (Hartmann & Vachon., 2018), social competition (Hartmann & Vachon., 2018), and central bank regulations (Hartmann & Vachon., 2018) can also influence the individual's behavior to implement green practices successfully. The researcher adopts the framework developed by Bouarar (2021) to integrate attitude toward behavior, subjective norms, perceived behavior control, and environmental knowledge as dimensions to fulfill the above purpose.

Attitude is a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor (Tian et al., 2020). Subjective norms are regarded as the social pressures on an individual to decide whether or not to perform a particular behavior (Chan & Hon, 2020). Individuals' behavioral intentions have been proven to be significantly and positively affected by their perceived behavioral control (Tang et al., 2019). According to Michelsen and Fischer (2017), environmental education is a key requirement to encourage sustainable consumption and pro-environmental behavior. Some studies have measured the environmental knowledge of specific environmental issues, such as the respondents' understanding of energy applications (Trotta, 2018), waste disposal (Saratale, 2018), and automotive environmental impacts (Flamm, 2009).

2.4 Relationships between Attitude towards Behavior, Subjective Norm, Perceived Behavior Control, Environmental Knowledge, and Intention to Implement Green Practices

The role of attitude in explaining intentions to implement green practices has been considered in several studies. Polonsky et al. (2012) affirmed that environmental attitudes trigger pro-environmental behaviors participation

decisions. Howell (2011) finds that raising people's positive perception regarding the repercussions of global warming has also been found as a factor that stimulates intentions to behave more pro-environmentally. Tian et al. (2020) indicated that pro-environmental attitude predicted required employee green behavior and voluntary employee green behavior. Banwo and Du (2019) found that environmental attitude had a significant direct effect on workplace pro-environmental behavior.

Banwo and Du (2019) found that social norms had a significant effect on workplace pro-environmental behavior. Recently, Wang et al. (2019) found that employee norms, subjective norms, descriptive norms, and electricity conservation habits have a significant effect on employees' intention to conserve electricity in the workplace. Chan and Hon (2020) indicated that subjective norms have a positive effect on employees' intention to practice environmental measures.

Banwo and Du (2019) found that PBC had a significant effect on workplace pro-environmental behavior. Besides, Greaves et al. (2013) showed that PBC significantly predicted the intentions to engage in environmental behavioral intentions in the workplace. Chan and Hon (2020) found that PBC affected employees' intention to practice environmental measures. However, Bouarar and Mouloudj (2021) found that PBC has no significant effect on employees' intentions to implement green practices.

Many scholars give different answers about whether environmental knowledge influences the intention to implement ecological practices. Levine et al. (2012) claimed that general ecological knowledge could significantly predict pro-environmental behaviors. The findings of the study by Aragón et al. (2013) indicate positive and significant relationships between information sharing practices with employees, encouraging employee cooperation, and the establishment of a proactive natural environmental strategy for a firm. However, managers' environmental knowledge and values are of little avail if they fail to bring about actions or behaviors that alleviate their organization's impact on the environment (Kim et al. (2018). Liu et al. (2020) show that environmental knowledge has an impact on environmental attitudes. On the contrary, Oĝuz et al. (2010) concluded that environmental knowledge does not always influence awareness and behavioral intentions. Duarte et al. (2017) argued there is no obvious relationship between ecological knowledge and intention to implement green practices. Moreover, Bartiaux (2008) demonstrated that although some people are knowledgeable of environmental issues, their knowledge does not correspond with their environmental actions.

In the light of the above literature, the following hypotheses are deduced.

H$_{1A}$: Attitude towards behavior impact on employees' intention to implement green practices in People's Bank in Rathnapura district

H$_{1B}$: Subjective norm impact on employees' intention to implement green practices in People's Bank in Rathnapura district
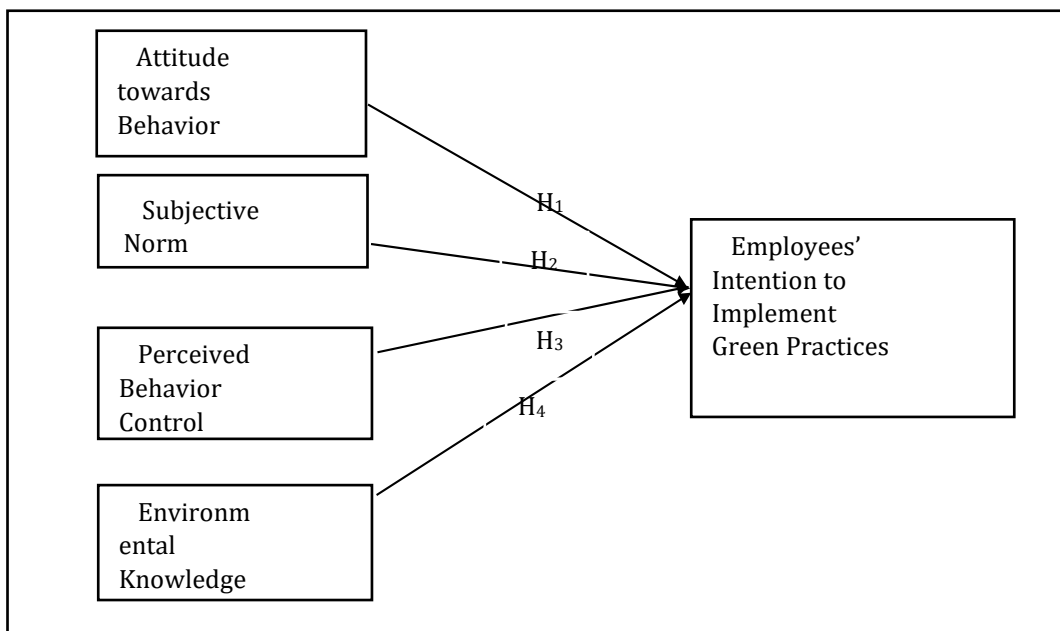
H$_{1C}$: Perceived behavior control impact on employees' intention to implement green practices in People's Bank in Rathnapura district

H$_{1D}$: Environmental Knowledge impact on employees' intention to implement green practices in People's Bank in Rathnapura district

2.5 Research Model

With the existing researchers' findings, the researcher has developed the conceptual framework. Here researcher has selected independent variables such as attitude towards behavior (Bouarar, 2021; Vinojini & Arulrajah, 2017), subjective norm (Bouarar, 2021; Hartmann & Vachon., 2018), perceived behavior control (Bouarar, 2021; Chan & Hon., 2020), and environmental knowledge (Bouarar, 2021; Kim et al., 2018) based on existing empirical evidence. The above-mentioned factors are identified as more significant determinants for the intention to implement green practices among all other determinants. Then, the researcher will test how these independent variables affect the intention to implement green practices in People's Bank in the Rathnapura district.

Figure 1: Conceptual Framework

Source: Researcher Compilation (2022)

3. Methodology

The research philosophy of this study is positivistic, and the research approach was deductive. The research design was a causal relationship, and the research type was explanatory. This study establishes a causal relationship between four factors such as attitude towards behavior, subjective norm, perceived behavior control and environmental knowledge and employees' intention to implement green practices. The research tested a set of hypotheses based on the quantitative data collected through a structured survey to verify the hypotheses. Therefore, the research mainly adopts a quantitative approach. The population of the study is the employees who are working in People's Bank in Rathnapura district. There are 303 employees (254 permanent employees and 49 school leavers) currently working in 28 branches of People's Bank across Rathnapura district. Since the population of the study is relatively small and easily surveyed, the researcher considered the census method for the present study.

The data for this study was collected at a single point in time between August – September 2021. Thus, the study was a single cross sectional in its time horizon. The research setting for the study was the People's Bank in Sri Lanka, and the

researcher has used primary data to address the research question in the current study.

A well-established standard questionnaire was used to measure each construct of the study. They intended to implement green practices (Bouarar & Mouloudj, 2021) and comprised four indicators.A sample item for "I intend to encourage my co-workers to implement green practices". A sample item for assessing attitude towards behavior is "implementing green practices in the workplace is important to me". A sample item for assessing subjective norms is "My supervisor expects me to implement green practices". A sample item for perceived behavior control is "implementing green practices in the workplace is easy". A sample item from environmental knowledge is "Carbon dioxide contributes to the creation of the greenhouse effect".

The unit of analysis was employees of People's Bank in Rathnapura district in Sri Lanka. The analysis was conducted in three steps; as the first step, reliability of the questionnaire was evaluated through reliability analysis. Confirmatory Factor Analysis was conducted to verify the already developed factor structure of a set of observed variables (Saunders et al., 2015). In the second step, descriptive statistical measures such as mean, frequencies and categorical table were used, further, to identify the relationship between the dependent and independent variables, cross tabulations were employed. In the next step, correlation and regression analyses were used to explain the relationship among variables.

4. Data Analysis

The proposed model presented in Figure I was tested using correlation and regression analysis through SPSS version 21.0. Confirmatory factor analysis (CFA) was applied on all scales to determine the factor structure of the data set.

4.1 Reliability and Validity Analysis

The overall Cronbach's Alpha values of all variables are greater than the acceptable level of Cronbach"s Alpha (0.7). They are attitude towards behavior (0.703), subjective norm (0.894), perceived behavior control(0.811) and environmental knowledge(0.878) and employees' intention to implement green practices(0.927). It can be concluded that the scale is reliable in this context. In addition, all the AVE and CR values were greater than 0.5, and all the variables were at the acceptable level. Therefore, it can be concluded that measuring instruments are validated in the present context.

Table 1: Validity through AVE and CR Values

Dimensions	Average variance extracted (AVE)	Composite Reliability (CR)
Attitude towards Behavior	0.5	0.8
Subjective Norm	0.5	0.9
Perceived Behavior Control	0.7	0.9
Environmental Knowledge	0.5	0.8
Employees' intention to implement green practices	0.5	0.7

Source: Survey Data on Factors Affecting Employees' Intention to Implement Green Practices in People's Bank in Rathnapura District, 2021

The researcher used Skewness and Kurtosis to check the normal distribution of the data population. As a result, Skewness values (0.843) are within the range of +1 to -1, and Kurtosis (0.958) values are within +3 to -3. Therefore, the researcher can conclude that the dependent variable follows a normal distribution.

In the next step, the relationship of four factors of attitude towards behavior, subjective norm, perceived behavior control and environmental knowledge and employees' intention to implement green practices determined the significant relationship between the variables.

4.2 Correlation Analysis

The researcher used Pearson's Correlation Coefficient (r) to measure the correlation. Table 2 represents the results of the correlation analysis.

Table 2: Results of Correlation Analysis

Dependent Variable	Independent Variable	Correlation Coefficient (r)	P-Value
Employees' intention to	Attitude towards Behavior	0.399	0.000

	implement green practices	Subjective Norm	0.503	0.000
		Perceived Behavior Control	0.440	0.000
		Environmental Knowledge	0.434	0.000

Source: Survey Data on Factors Affecting Employees' Intention to Implement Green Practices in People's Bank in Rathnapura District, 2021

According to the correlation analysis, it can be seen that the moderate positive correlation between Subjective Norm (0.503), Perceived Behavior Control (0.440), and Environmental Knowledge (0.434) and the employees' intention to implement green practices in the People's Bank in Rathnapura district is at a 95% confidence level. Moreover, a low positive correlation between Attitude towards Behavior (0.399) and the employees' intention to implement green practices in the People's Bank in Rathnapura district is at a 95% confidence level.*3. Regression Analysis*

Table 3 shows the multiple regression results with the backward elimination method. Here, model 02 generates subjective norm, perceived behavior control, and environmental knowledge as the most significant variables while removing the other variable of attitude towards behavior because of its insignificance.

Table 3: Regression Output

Model	Variable		P-Value	Regression coefficient
01	Constant		0.000	1.593
	Attitude towards Behavior		0.539	0.035
	Subjective Norm		0.000	0.201
	Perceived Behavior Control		0.000	0.245
	Environmental Knowledge		0.000	0.206
02	Constant		0.000	1.650
	Subjective Norm		0.000	0.210

	Perceived Behavior Control	0.000	0.252
	Environmental Knowledge	0.000	0.213

Source: Survey Data on Factors Affecting Employees' Intention to Implement Green Practices in People's Bank in Rathnapura District, 2021

As per the regression equation, the constant (β_0) is 1.650, which means that the employees' intention to implement green practices in People's Bank in Rathnapura district is increased by 1.650, while all the other independent variables (Subjective Norm, Perceived Behavior Control, Environmental Knowledge) are kept as constants. Furthermore, when the Subjective Norm is increased by 1 unit, it is expected to increase employees' intention to implement green practices in People's Bank in Rathnapura district by 0.210 units while keeping other variables as constants. Moreover, when Perceived Behavior Control is increased by 1 unit, it is expected to increase the employees' intention to implement green practices in People's Bank in Rathnapura district by 0.252 units keeping other variables as constants. Simultaneously, the employees' intention to implement green practices in People's Bank in Rathnapura district can be increased by 0.213 units if Environmental Knowledge increases by 1 unit while keeping other variables as constants.

4.3 Results of the Hypotheses Testing

H₁ₐ: Attitude towards behavior impact on employees' intention to implement green practices in People's Bank in Rathnapura district

As per model 2 of Table 3, the P-value related to the variable Attitude towards behavior is 0.539, which indicates a value greater than the critical p-value (0.05). Therefore, it can be concluded with a 95% confidence level that Attitude towards behavior does not impact employees' intention to implement green practices in People's Bank in Rathnapura district. These findings are supported by Vinogini and Arulrajah., (2017), and they also found that attitude towards behavior and personal norms do not have a significant impact on employees' intention to implement green practices in the apparel industryof the Nuwara Eliya district in Sri Lanka. Typically, employees working attached to Asian cultures have to adhere to the organizational rules and regulations rather than doing anything without their consent. In such situations, attitude is not a considerable factor in determining behavioral intention regarding green practices implementation.

H₁ʙ: Subjective norm impact on employees' intention to implement green practices in People's Bank in Rathnapura district

As per model 2 of Table 3, the p-value relates to the subjective norm (0.000) is less than a critical P-value (0.05). Therefore, it can be concluded that the subjective norm with a 95% confidence level impact on employees' intention to implement green practices in People's Bank in Rathnapura district. The previous studies (Bouarar, 2021; Banwo and Du, 2019; Wang et al., 2019) confirmed that the subjective norm could impact the employees' intention to implement green practices.

H_{1C}: Perceived behavior control impact on employees' intention to implement green practices in People's Bank in Rathnapura district

As per model 2 of Table 3, the p-value related to the Perceived behavior control (0.000) is less than a critical P-value (0.05). Therefore, it can be concluded that perceived behavior control with a 95% confidence level impacts employees' intention to implement green practices in People's Bank in Rathnapura district. The following research finding is aligned with current research findings; Banwo and Du (2019) and Chan and Hon (2020) found that perceived behavior control had a significant effect on the intention of employees to practice environmental measures. However, Bouarar (2021) have identified that perceived behavior control does not impact employees' intention to implement green practices.

H_{1D}: Environmental Knowledge impact on employees' intention to implement green practices in People's Bank in Rathnapura district

As per model 2 of Table 3, the p-value of environmental Knowledge (0.000) is less than the critical p-value (0.05). Therefore, it can be concluded that environmental knowledge with a 95% confidence level impacts employees' intention to implement green practices in People's Bank in Rathnapura district. Bouarar (2021), Kim et al. (2018), and Liu et al. (2020) have identified that environmental knowledge impacts employees' intention to implement green practices.

5. Conclusion

For the present study, the researcher strived to find the employees' intention to implement green practices in the People's Bank in Rathnapura district, and the researcher has selected four factors (attitude towards behavior, subjective norm, perceived behavior control, and environmental knowledge) based on empirical studies and tried to identify whether they have an impact on employees' intention to implement green practices in the People's Bank in Rathnapura district. The final results of the survey have proved that among four factors, only three factors have an impact on employees' intention to implement green practices in the People's Bank in Rathnapura district.

As per the results of the Regression analysis, it can be seen that the employees' intention to implement green practices is positively impacted by the perceived behavior control, subjective norm, and environmental knowledge of the selected respondents in the current context. However, attitude towards behavior does not impact employees' intention to implement green practices in People's Bank in Rathnapura district.

6. Implications of the Study

The researcher exhibits the implications of the present study in both a theoretical and practical way. Considering the Sri Lankan context, the studies based on the implementation of green banking practices are very limited; only a few scholars have focused in developing theories for the particular concept. Similarly, in relation to the People's Bank, no research studies have been found on the concept of employees' intention to implement green practices. Therefore, this study will assist future researchers in finding more factors that impact the employees' intention to implement green practices in the Sri Lankan banking sector. Moreover, the researcher added a new factor environmental knowledge, which impacts the employees' intention to implement green practices in an organizational context in addition to the Extended Theory of Planned Behavior developed by Bouarar (2021).

Managerial implications might be suggested based on the findings regarding the best possible ways of encouraging employees to implement green practices in People's Bank in Rathnapura district. First and foremost, it is essential to recognize the employees' voluntary role in the success of environmental initiatives. Besides, it is vital to establish and increase self-efficacy feelings, and foster feelings of the ability to perform the greater intentions to implement green practices in People's Bank. Moreover, it is highly recommended to help employees overcome any hurdles that may hinder their contribution to implementing green practices, like providing a comprehensive guide of environmental practices implemented by the bank and organizing training programs regarding green practices. Further, incentives such as awards, promotions, and certificates can be offered to employees who integrate green practices to achieve the sustainable goals of the People's Bank.

7. Future Research Directions

First, the researcher suggests future scholars to explore factors affecting employees' intention to implement green practices based on other district branches of People's Bank as well as the other banks in Sri Lanka to improve the generalization of the present study. Second, in the present study, since the researcher used questionnaires to gather data in the present study, future

scholars can use the interview method to take ideas qualitatively about employees' intention to implement green practices in the banking sector. Third, this research is based on the extended Planned Behavior Theory Model, and future researchers can extend the model by finding other factors that are not considered in the present study, which will impact employees' intention to implement green practices in Sri Lanka.

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UNVEILING THE NEXUS: INVESTIGATING THE IMPACT OF DEMOGRAPHIC FACTORS ON ENVIRONMENTAL ATTITUDES AMONG UNIVERSITY STUDENTS IN SRI LANKA

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Abstract

The significance of environmental issues within the contemporary global arena is undeniable. Universities and their students have embraced a distinctive role in contributing to environmental sustainability. Environmental initiatives can be analyzed through a psychological view, particularly with regard to environmental attitudes. This study directs its focus towards investigating the relationship between environmental attitudes and demographic variables such as gender, religion, academic specialization, and hometown. Empirical data has been gathered from a cohort of eighty-six university students representing diverse demographic backgrounds. The findings of this investigation reveal that gender exerts a significant influence on anti-anthropocentrism attitudes among university students. Consequently, this study advocates for the pursuit of further research endeavors utilizing a diverse array of methodological approaches to comprehensively address these concerns.

Keywords: Anti-anthropocentrism Environmental attitudes, new ecological paradigm.

1. Introduction

Today, the imperative and fundamental nature of environmental compliance has gained paramount significance globally. Since the 1970s, societies across the globe have increasingly recognized environmental concerns as a crucial concern (Grunert, 1991). The advent of the green revolution within business entities at the turn of the new millennium has mandated the universal adoption of environmental management as a pervasive organizational philosophy, necessitating the collective involvement of all personnel in fostering ecological responsibility (Sarkis et al., 2010).

In this dynamic context, the role of universities possesses indisputable importance. As argued by Massimo et al. (2016), the attainment of sustainability within the universities has emerged as a crucial concern for themselves owing to the amplified awareness of the profound impact that universities deliver on the environment. The present study is centered on exploring the environmental attitudes exhibited by university students in Sri Lanka.

1.1 Research Problem

The research problem addressed in this study revolves around understanding the relationship between environmental attitudes and various demographic variables among university students. Specifically, the study aims to investigate the effect of gender, religion, academic specialization, and hometown on environmental attitudes among university students.

1.2 Objectives

1.2.1 To identify and analyze the impact toward environmental attitudes of the university students from the demographic factors (Specialization, gender, residential background, religion), the relationship between environmental attitudes and demographic variables

1.2.2 To identify the nature of the environmental attitudes held by the university students

1.3 Limitations

1.3.1. Study of the environmental attitudes is limited to a scenario among the university students.

1.3.2. The study only focuses on the natural environmental factors of a university with inadequate concern over the social and artificial environment.

1.3.3 The study has not focused on the continual changes in the environmental attitudes of university students throughout the study period.

1.4 Significance of the Research

Herremans & Allwright (2006) emphasized that organizations embarking on environmental initiatives must accord the highest priority to fostering awareness and transforming attitudes concerning their environmental impacts. This highlights the fundamental role of attitudes in influencing environmental performance. The "Decade of Education for Sustainable Development", spanning from 2005 to 2014, served as a catalyst for higher education institutions to adopt green policies, manifestos, and visions (Puukka, 2008). Notably, there remains an inadequacy of studies focused on environmental issues specifically targeting university students as respondents (Vicente-molina et al., 2013).

This study endeavors to empower university students towards environmental initiatives by methodically discerning their environmental attitudes and thereby initiating proactive environmental actions. Importantly, after graduation, university students are expected to translate their acquired knowledge, skills, attitudes, and values not only into their personal lives but also within their respective surroundings (Şahin & Erkal, 2017).

In light of this backdrop, the present study significantly contributes to the realm of knowledge concerning environmental attitudes and their pertinence within the Sri Lankan university system. The systematic identification and examination of demographic variables will offer policymakers valuable insights into discerning the patterns and behaviors characterizing environmental attitudes within universities, thereby facilitating the advancement of sustainable environmental practices.

2. Literature Review

2.1 Introduction

This chapter discovers the implications arising from the previous research studies which have emanated in the background of this study. It includes the research studies carried out in the vicinity of the concepts of environment, environmental attitudes, and the universities.

2.2 Importance of the Natural Environment

McCloskey & Maddock (1994) highlighted the transformation of environmentalism into a competitive aspect within marketplaces. They

emphasized the imperative of curbing environmental erosion while concurrently striving to gather public acceptance and credibility. Over the past few decades, organizations have encountered escalating pressures on economic, political, and social fronts, compelling them to incorporate ecological considerations and elevate their environmental performance (Sarkis et al., 2010).

2.3 Importance of the Environmental Attitudes

Numerous scholars have extensively investigated the realm of environmental attitudes, highlighting the significance of this concept (Cordano et al., 2010; Cummings, 2008; Dunlap et al., 2000; Dunlap & Van Liere, 1978; Hawcroft & Milfont, 2010; Khan et al., 2012; Lundmark, 2007; Pienaar et al., 2013; Reyna et al., 2018; Schultz, 2001; Stern & Dietz, 1994; Zelezny & Schultz, 2000).

In fact, the origins of linking behaviors with attitudes can be traced back to the 1970s, with researchers such as Ajzen & Fishbein (1977) emphasizing the systematic relationship between these two constructs. Forgas & Jolliffe (1994) contend that environmentalism transcends mere individual attitudes, establishing a nuanced amalgamation of attitudes encompassing interrelated concerns such as energy conservation, biodiversity, and recycling.

The escalating global environmental crises have made assessing individuals' environmental attitudes imperative (Khan et al., 2012). Crumpei et al. (2014) emphasized that attitudes diverging from principles of values tend to manifest in behavior and profoundly shape life choices.

Hawcroft & Milfont (2010) defined environmental attitude as a psychological predisposition that involves the evaluation of the natural environment with varying degrees of approval or disapproval. However, the conceptualization of environmental attitudes is multidimensional, with authors like Dunlap & Jones (2002) characterizing them as integral to environmental concerns.

2.4 Importance of the Universities and University Students in Environmentalism

The prioritization of cultivating environmental and sustainable values within universities is widely recognized (Şahin & Erkal, 2017). Uhl & Anderson (2001) pointed out that universities possess a unique capacity to educate individuals about environmentally friendly living. Amaral & Martins (2015) emphasized the significant societal responsibility universities hold in shaping future leaders' education and expanding public awareness of sustainability. Universities' environmental dedication is a potential role model for broader society (Ferrer-Balas et al., 2008). Consequently, universities are ethically compelled to strive

for sustainable societies, addressing environmental degradation and the preservation of resources for present and future generations (Lozano & Lozano, 2013).

Disterheft (2011) argued that universities need to focus on dual roles: reducing ecological impact through their operations and fostering research and education that equips staff and students with the competencies necessary for sustainable practices. Despite the acknowledgement by Thapa (1999) of the significance of undergraduate students in environmental research due to their potential as future policymakers, there remains a dearth of studies examining university students' perspectives on environmental issues (Vicente-molina et al., 2013). In this context, this study aims to specifically address this gap by focusing on the environmental attitudes of university students.

Existing research literature reveals extensive exploration of various demographic factors in relation to environmental concerns, including gender (Arcury & Christianson, 1990; Boeve-de Pauw & van Petegem, 2010; De Silva et al., 2012; Franzen & Meyer, 2010; Price & Bohon, 2012; Schultz, 2001; Stern & Dietz, 1994; Torgler et al., 2005; Zelezny, 2000) religion (Arbuckle & Konisky, 2015; Hayes & Marangudakis, 2001; Hope & Jones, 2014; Morrison et al., 2015), residential background (Tuncer et al., 2004; Worsley & Skrzypiec, 1998; Yu, 2014), and specialization (Boeve-de Pauw & van Petegem, 2010; Köse et al., 2010).
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Gender has yielded diverse findings among researchers regarding its impact on environmental concerns. While Arcury & Christianson (1990) found that men exhibited more environmentalist worldviews than women, recent studies indicate that women tend to demonstrate stronger environmental concern and attitudes (Boeve-de Pauw & van Petegem, 2010; Franzen & Meyer, 2010; Price & Bohon, 2012; Stern & Dietz, 1994; Zelezny, 2000).

Arbuckle & Konisky (2015) highlighted the analogous significance of religion, akin to gender, in influencing environmental attitudes. Although religion may not inherently drive environmental attitudes, its impact on these attitudes has been explored (Arbuckle & Konisky, 2015; Hayes & Marangudakis, 2001; Hope & Jones, 2014; Morrison et al., 2015).

The residential background has yielded varied outcomes. Worsley & Skrzypiec (1998) found no significant difference in environmental attitudes between rural and urban secondary school students in South Australia. Tuncer et al. (2004) reported mixed results in environmental attitudes among grade six students from rural and urban areas in Turkey. While urban students demonstrated heightened awareness of environmental problems and individual

responsibilities, Tuncer et al. (2004) found no statistically significant difference in general environmental attitudes. In contrast, Yu (2014) discovered that urban citizens exhibited greater environmental concern compared to their rural counterparts in China.

A positive relationship between science ability and environmental attitudes was identified by Boeve-de Pauw & van Petegem (2010) among fifteen-year-old youths across fifty-six countries. Köse et al. (2010) observed a similar trend among university students in Turkey, where medicine undergraduates displayed more positive environmental attitudes compared to Engineering and Economic and Administrative Sciences Faculty undergraduates.

3. Methodology

The study has utilized the New Ecological Paradigm (NEP), which was initially introduced by Dunlap & Van Liere (1978) as the New Environmental Paradigm and revised in 2000 by Dunlap et al. (2000) in evaluating the environmental attitudes of the university students. A number of researchers have utilized the NEP model to enlighten their studies (Cordano et al., 2010; Cummings, 2008; Hawcroft & Milfont, 2010; Khan et al., 2012; Lundmark, 2007; Pienaar et al., 2013; Reyna et al., 2018; Schultz, 2001; Stern & Dietz, 1994; Zelezny & Schultz, 2000).

In their revised version of NEP, Dunlap *et al.* (2000) suggested five categories of environmental attitudes represented by fifteen statements to evaluate the nature of the environmental attitude held by the respondent. Each demographic factor was tested upon each of the environmental attitude categories, and the hypotheses were constructed accordingly. The hypotheses were constructed as demonstrated by Table 1.

Table 1: List of Null Hypotheses

Hypotheses code	Null hypotheses
H1	Gender does not influence the environmental attitudes toward the reality of limits to growth
H2	Gender does not influence the environmental attitudes of anti-anthropocentrism

H3	Gender does not influence the environmental attitudes fragility of nature's balance
H4	Gender does not influence the environmental attitudes rejection of exceptionalism
H5	Gender does not influence the environmental attitudes possibility of an Eco crisis
H6	Specialization does not influence the environmental attitudes toward the reality of limits to growth
H7	Specialization does not influence the environmental attitudes of anti-anthropocentrism
H8	Specialization does not influence the environmental attitudes to the fragility of nature's balance
H9	Specialization does not influence the environmental attitudes rejection of exceptionalism
H10	Specialization does not influence the environmental attitudes possibility of an Eco crisis
H11	Religion does not influence the environmental attitudes of the reality of limits to growth
H12	Religion does not influence the environmental attitudes of anti-anthropocentrism
H13	Religion does not influence the environmental attitudes fragility of nature's balance
H14	Religion does not influence the environmental attitudes rejection of exceptionalism
H15	Religion does not influence the environmental attitudes possibility of an Eco crisis
H16	Home town does not influence the environmental attitudes of the reality of limits to growth
H17	Home town does not influence the environmental attitudes of anti-anthropocentrism

H18	Home town does not influence the environmental attitudes fragility of nature's balance
H19	Home town does not influence the environmental attitudes rejection of exceptionalism
H20	Home town does not influence the environmental attitudes possibility of an Eco crisis

Source: Developed by the Researcher as per the Research Methodology

The research has gathered a sample dataset comprising eighty-six students from the Sabaragamuwa University of Sri Lanka. A total of one hundred and twenty students from two distinct faculties, namely the Faculty of Applied Sciences and the Faculty of Social Sciences and Languages, were selected at random (The students had been asked whether they were willing to take part in a survey through Google groups of the faculties and hundred and twenty students had expressed their consent). These students were reached via emails and were invited to complete the research questionnaire administered through Google Forms. The collected data was subsequently subjected to analysis using the Chi-square test within the SPSS software package, considering the categorical nature of the data. The demographic variables were categorized as follows: Gender (male, female), Specialization (related to environmental sciences, not related to environmental sciences), Religion (Buddhism, Christianity including its various denominations, Hinduism, Islam, others), and Home town (urban, rural). Each statement reflecting environmental attitudes was assessed using a five-point Likert scale in accordance with the revised scale established by Dunlap et al. (2000).

4. Findings, Discussion, and Summary

Table 2 demonstrates the summary of the sample data based on the demographic variables concerned.

Table: Summary of the Sample Data

Category		Number	Total
Gender			
	Male	29	
	Female	57	86

Specialization		
Environmental science and related	27	
Not related to environmental science	59	86
Religion		
Buddhism	68	
Christianity, including all the variations	8	
Hinduism	8	
Islam	1	
Other	1	86
Hometown		
Urban	41	
Rural	45	86

Source: Compiled Based on the Data Collected

In accordance with Table 2, the majority of the participants were females by gender, specialized in subjects that were not related to environmental science, and had faith in Buddhism while living in rural areas.

The Chi-square test results indicated that the H_2 null hypothesis had been rejected ($X2(3) =11.080$, $p<.05$) while none of the all but H_2 null hypotheses were not rejected as per the resulting p values. However, the strength of the association between **Gender** and **anti-anthropocentrism** environmental attitudes was tested in the respective Cramer's V value. It denoted 0.359, which is adequate to consider as a strong association between the two variables of Gender and the anti-anthropocentrism environmental attitudes, as emphasized by Akoglu (2018).

Table 3: Summary of the Chi Square Test Results on P-values over the Hypotheses

Hypothesis Number	P-value of Pearson's Chi-Square Test	Decision	Conclusion
H_1	0.437	Do not reject the null hypothesis	Gender does not influence the environmental attitudes toward the reality of limits to growth
H_2	0.011	Reject null hypothesis	Gender influences the environmental attitudes of anti-anthropocentrism
H_3	0.679	Do not reject the null hypothesis	Gender does not influence the environmental attitudes fragility of nature's balance
H_4	0.143	Do not reject the null hypothesis	Gender does not influence the environmental attitudes rejection of exceptionalism
H_5	0.402	Do not reject the null hypothesis	Gender does not influence the environmental attitudes possibility of an Eco crisis
H_6	0.230	Do not reject the null hypothesis	Specialization does not influence the environmental attitudes toward the reality of limits to growth
H_7	0.706	Do not reject the null hypothesis	Specialization does not influence the environmental attitudes of anti-anthropocentrism
H_8	0.327	Do not reject the null hypothesis	Specialization does not influence the environmental attitudes to the fragility of nature's balance
H_9	0.082	Do not reject the null hypothesis	Specialization does not influence the environmental attitudes rejection of exceptionalism
H_{10}	0.485	Do not reject the null hypothesis	Specialization does not influence the environmental attitudes possibility of an Eco crisis

H_{11}	0.367	Do not reject the null hypothesis	Religion does not influence the environmental attitudes of the reality of limits to growth
H_{12}	0.867	Do not reject the null hypothesis	Religion does not influence the environmental attitudes of anti-anthropocentrism
H_{13}	0.841	Do not reject the null hypothesis	Religion does not influence the environmental attitudes fragility of nature's balance
H_{14}	0.232	Do not reject the null hypothesis	Religion does not influence the environmental attitudes rejection of exceptionalism
H_{15}	0.089	Do not reject the null hypothesis	Religion does not influence the environmental attitudes possibility of an Eco crisis
H_{16}	0.569	Do not reject the null hypothesis	Home town does not influence the environmental attitudes of the reality of limits to growth
H_{17}	0.581	Do not reject the null hypothesis	Home town does not influence the environmental attitudes of anti-anthropocentrism
H_{18}	0.907	Do not reject the null hypothesis	Home town does not influence the environmental attitudes fragility of nature's balance
H_{19}	0.522	Do not reject the null hypothesis	Home town does not influence the environmental attitudes rejection of exceptionalism
H_{20}	0.277	Do not reject the null hypothesis	Home town does not influence the environmental attitudes possibility of an Eco crisis

Source: Compiled by the Researcher, Based on the Statistical Analysis

The findings of this study indicate that specialization, religion, and hometown were unable to generate a significant impact on the environmental attitudes held by the university students. However, the research study discovers a significant difference between Gender and anti-anthropocentrism attitudes.

Table 4: Symmetric Measures for Gender vs. Anti-anthropocentrism

		Value	Approx. Sig.
Nominal by Nominal	Phi	.359	.011
	Cramer's V	.359	.011
N of Valid Cases		86	

Source: Generated by the Researcher, based on the Data Analyzes

Indicating the significance of the demographic factor of Gender with the anti-anthropocentrism scales is a similar finding with the previous research studies that utilized the NEP scale to evaluate the environmental attitudes of university undergraduates such as Plavsic (2013). Table 5 demonstrates that it was the female students who were leading contributors to the higher anti-anthropocentrism values.

Table 05: Cross tabulation for the Gender with Anti-anthropocentrism			Anti-anthropocentrism				Total
			2.00	3.00	4.00	5.00	
Gender1	Female	Count	3	29	25	0	57
		% within Gender1	5.3%	50.9%	43.9%	0.0%	100.0%
		% within Anti-anthropocentrism	50.0%	78.4%	64.1%	0.0%	66.3%
	Male	Count	3	8	14	4	29
		% within Gender1	10.3%	27.6%	48.3%	13.8%	100.0%
		% within Anti-anthropocentrism	50.0%	21.6%	35.9%	100.0%	33.7%
Total		Count	6	37	39	4	86
		% within Gender1	7.0%	43.0%	45.3%	4.7%	100.0%
		% within Anti-anthropocentrism	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Compiled by the researcher, based on the data analyses

In accordance with the research objectives, this finding clears the path for remarkable views on the environmental attitudes of university students. While it is indicated a significant domination over the demographic factor of Gender throughout the category of anti-anthropocentrism, it demonstrates the behavior of the environmental attitudes achieving the first objective. The results

indicate that the majority of female respondents had a mean value of below three, suggesting that they were scoring lesser anti-anthropocentrism attitudinal values. It suggests that they were rather in the attitude of considering humans as the basic and major stakeholder on environmental issues over the other parties such as plants and animals. Hence, it leads to the achievement of the second objective by showing a view that the nature of the environmental attitudes held by the university students was majorly supported by the view of considering humans as the central and most prominent factor over the environmental matters dominating the lives of plants and animals.

This study suggests and encourages future studies pertaining to the expanded research studies in relation to the environmental attitudes of university students with different demographic variables and measuring over a period from the same sample to measure the continual variations of the environmental attitudes of a sample of students. It will be able to explore new research heights addressing the limitations specified in the research study.

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CAUSES AND CHALLENGES FOR FOOD WASTE MANAGEMENT IN FIVE STAR HOTELS WITH A SPECIAL REFERENCE TO GALLE DISTRICT, SRI LANKA

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Abstract

Food waste is the major type of waste problem that has been facing the world. In Sri Lanka, half of the total solid waste represents food and green waste. The hotel sector can be considered a major food waste generator compared to other food service industries. Food waste also negatively impacts the environment, economy, and society of the country. This study aims to identify the causes of food waste in five-star hotels, identify the challenges faced by five-star hotels when managing food waste, and examine the sustainable food waste reduction strategies that can be adopted by five-star hotels in the Galle district, Sri Lanka. The qualitative research approach and phenomenology have been selected as the research design. The data were collected through semi-structured interviews, and both face-to-face and telephone interviews were conducted. Based on the analysis using qualitative thematic analysis, the findings were six causes of food waste were identified as Menu Planning error, ingredient spoilage, Inventory controlling error, Taste of the food, Guest's attitudes, Buffet, and causes for food waste were classified into two categories such as Pre consume and Post consume there are five food waste management challenges identified as internal challenges as The staff of the hotels, Type of food service, Menu planning and external challenges as Ingredients spoilage and guest's attitudes. Five-star hotels in the Galle district currently use food waste disposal practices and food waste reduction strategies, and they are concerned about their food waste control, so they use some awareness programs, especially for their staff community. In this study, the researcher mainly identified from interviews that the main factor for food waste is the guests' attitude. The recommendations for better food waste prevention and reduction include different means such as using new food waste composting machines, using artificial intelligence, using food waste management software, conducting awareness programs for reducing food waste, and achieving business sustainability.

Keywords: Food waste, food waste reduction, five-star hotels, sustainability .

1. Introduction

Municipal Solid Waste (MSW) is a pool of various solid wastes by towns and cities from different types of household activities. It may include food and green waste, electronics and electrical waste, and composite waste (Ozcan, et al., 2016). Food waste has been identified as a major portion of total MSW waste in the world (Zhang, et al., 2018). Food waste means food intended for human consumption, either in edible or inedible status, removed from the production or supply chain to be discarded including at primary production, transportation, storage, retail, and consumer levels except for primary production losses.

According to the Food and Agriculture Organization (FAO), one-third of global food is wasted. 1.2 billion tons of food is wasted on farms each year – the weight of 10 million blue whales and the global volume of food wastage is estimated at 1.6 billion tons of primary product equivalents. Total food wastage for the edible part of this amounts to 1.3 billion tons (FAO, 2019). According to the UN Food Waste Index 2021 in Sri Lanka, the per capita food waste is 76 kg annually while every year over 1.6 million tons of food waste are generated in households. In Sri Lanka, 64% of solid waste consists of food waste mainly from households, restaurants, meat, and vegetable markets (Forbes, Quested, & Connor, 2021). According to the United Nations Food Program, about 22% of the total population in Sri Lanka does not have sufficient food to sustain a healthy life. According to the 2020 GHI report, 7.6% of Sri Lanka's population is undernourished. It also showed the country recorded a 15.1% of wasting and 17.3% of stunting rate among children under five years (Grebmer, et al., 2020). About 22% of the total population in Sri Lanka does not have sufficient food to sustain a healthy life and 33% of the people cannot afford a nutritious diet (Reitemeier, Aheeyar, & Drechsel, 2021).

Food waste mainly occurs in the food service sector and that includes hotels, cafeterias, catering, and many other formats. Being a large resource consumer, the hotel sector is considered a high food waste-generating sector (Sandaruwani & Gnanapala, 2016). The expansion of the hospitality sector's operations would lead to an increase in waste generated by the sector (Pirani & Arafat, 2016). As an example, in the UK alone, 920,000 tons of food is wasted at hospitality and food service sector outlets annually, 75% of which is avoidable (Parfitt, Hawkins,, & Prowse, 2013). Food waste is a major problem within the hotel sector across various countries (Goh & Jie, 2019). The hotel industry in Sri Lanka has been labelled as one of the highest energy consumers and waste generators with an estimated 79% of their waste related to food (Corporation, 2013). In Sri Lanka, the amount of food waste can be estimated as 353 tons per day and gives the highest contribution to that waste from households as half of the total food waste, and the hotels and restaurant sector generates 110 metric tons per day (Fernando & Santini, 2018). In Sri Lanka, The hotel industry is a significant

waste generator which is responsible for 11,749 tons (72,941 cubic meters) of waste annually (Wijesekara, & Sridarran, 2020). In a typical hotel, the breakup of solid waste generation by type is food and non-recyclables, 46.2% of food waste.

Sri Lanka should be considered a leading tourist service provider in the South Asian region and provide a massive contribution to the economy by generating employment opportunities and earning USD dollars for the economy. Food is the backbone of the hotels (Nair, Choudhary, & Prasad, 2019). Five-star hotel means that hotels provide flawless guest services in a state–of–the–art facility. As a five-star property, it has premium dining options and personalized services for its guests. While considering the subject in the tourism sector, the selection of five-star international chain hotels stems from the fact that these enterprises set an example to other tourism facilities by appealing to a wide range of people with the help of their quality standards and brand recognition—similarly, the loyalty of the star hotel customers and their tendency to revisit. With increasing tourist arrivals and occupied hotel rooms, there is a high tendency to generate food and other types of waste materials in the 5-star hotel sector. The typical hotel guest produces approximately 1 kg of waste per day (Zorpas, et al., 2012). The typical hotel food waste generation percentage is 46.2% of their total solid waste (IFC, 2013). According to the report of Ensure Sustainability in Sri Lanka Hotels, in the hotel sector, the major solid waste type is food waste and the quantity is 6000 metric tons per month (IFC, 2013).

According to the Sri Lanka Tourism Development Authority (SLTDA, 2018), the annual tourist arrivals to Sri Lanka are around 1.4 billion. They have also mentioned that most of the registered villas and hotels are concentrated in the Galle District and the south coast region has 35.04 of the total accommodation capacity in Sri Lanka. It is highlighted as the second-highest accommodation capacity in Sri Lanka. Therefore, it can be considered that the Galle District is the most tourist arrival and destination place. According to SLTDA statistics, the south coast is considered the third highest occupancy distributed-rated region in Sri Lanka. Occupancy rates mean the percentage of occupied rooms in the area, the percentage representing 73.10% (SLTDA, 2018). In 2020 the percentage of room capacity of graded accommodation units by star category was 21% in the five-star hotel category. The south coast region was reported as the third highest tourist accommodation capacity in Sri Lanka at a percentage of 14.9% and provided facilities for 6370 tourists in 2020. In Sri Lanka, the proportion of foreign guest nights spent in the south coast region was 35.8% and it was the second largest percentage in Sri Lanka the largest proportion of nights local guests spent reported in the south coast region was 34.73% in the 2018 year (SLTDA, 2018). It represented the highest rate for local guests in Sri Lanka in the 2018 year.

The Sri Lankan hotel industry is crucial since there is no strict legal background that specifically governs the hotel industry waste, except for a few regulations related to tourism (Wijesekara, & Sridarran, 2020). Therefore, the hotel sector needs a better and more effective food waste management approach to tackle food waste. The researcher has identified that there are only a few studies done regarding food waste management in Sri Lankan five-star hotels. Especially, there were no comprehensive studies found on food waste management in five-star hotels in the Galle district. Therefore, there is a knowledge gap about food waste management in five-star hotels and this study will focus on the following research objectives.

1.1. Research Objectives

The researcher's aims of this study are to examine the contributing factors to generate food waste in the five-star hotels in Galle District, to examine the challenges faced by five-star hotels in Galle District in managing food waste And to suggest sustainable food waste reduction strategies that can be adopted by the five-star hotel in Galle District.

1.2. Limitations of the Study

- This study does not consider the quantity of food waste generation in the selected hotel sector for analysis and findings.
- The research studies could collaborate with waste management companies, organizations, and institutions to explore applicable and scientific solutions to limit continuous food waste.
- In this study, the researcher considered food waste management in general without focusing on financial, environmental, and social perspectives.

2. Literature Review

2.1. Concept of Waste and Food Waste

Waste is an urban area (garbage) composed of degradable organics (Plants and animals), no degradable organics (plastic polythene) , various metals, glasses, rubber, materials textiles, and papers (Wijetunga, 2013). Waste is any subsistence materials derived from the primary use or a useless defective, solid waste or garbage composed of unwanted and discarded materials from houses, street waste, commercial waste, and industrial operations (Dharmasiri, 2019). Food waste includes municipal solid waste and half of the municipal solid waste represents food waste. According to Gordon & Rensburg, (2002), food is an edible substance that gives people nourishment. FAO states that both food loss and food waste mean the decrease of food in subsequent stages of the food supply chain intended for human consumption FAO, (2013). Food waste is

witnessed by most people in their everyday life Ozdemir & Gucer, (2018). (Filimonau, et al., 2020) state that defining food waste can be problematic and there is often no clear differentiation, especially from the managerial viewpoint between food waste and food loss. Food waste is removed food and is no longer available to consume due to damage or other causes (Cahyana, Vanany, & Arvitrida, 2019) Food losses and waste can occur during any stage of the food supply chain (Díaz & Mena, 2014).

Figure 1: Food Losses and Food Waste in Different Regions of the World
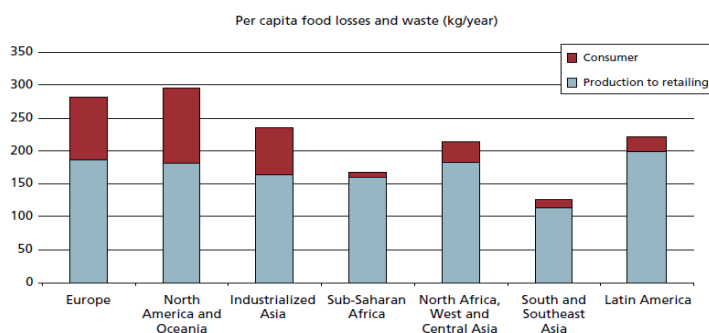
 Source: Gustavsson, et al. (2011)

Figure 1 illustrates that the per capita food loss in Europe and North America is 280-300 kg/year. In sub-Saharan Africa and South/Southeast Asia, it is 120-170 kg/year. The total per capita production of edible parts of food for human consumption is, in Europe and North America, about 900 kg/year and, in sub-Saharan Africa and South/Southeast Asia, 460 kg/year. Per capita, food wasted by consumers in Europe and North America is 95-115 kg/year, while this figure in sub-Saharan Africa and South/Southeast Asia is only 6-11 kg/year (Gustavsson, et al., 2011).

2.2. Hotel Sector Food Waste

Food waste is a major problem within the hotel sector across various countries (Goh & Jie, 2019). Based on (Quested, et al., 2011) and (Papargyropoulou, et al., 2014). In the hotel sector food waste is grouped into three categories: Avoidable food waste, Unavoidable food waste, and possibly avoidable food waste. As an example, in the United Kingdom (UK) alone, 920,000 tons of food is wasted at hospitality and food service sector outlets annually (Parfitt, Hawkins,, & Prowse, 2013). For example, in Denmark, the hospitality industry contributes more than 50%of waste related to food waste (Curry, 2012). Being the largest food

consumer in the hotel sector generates a large portion of food waste (Sandaruwani & Gnanapala, 2016). In Sri Lanka, the typical hotel food waste generation percentage is 46.2% of their total solid waste (IFC, 2013). The hotel industry in Sri Lanka has been labelled as one of the highest energy consumers and waste generators with an estimated 79% of their waste related to food (Corporation, 2013). In Sri Lanka, the hotels and restaurant sector generate 110 metric tons per day (Fernando & Santini, 2018).

2.3 Impact of Food Waste

It lists the main influences of food waste on the environment such as land waste, water waste, air pollution, greenhouse gases, energy waste, and toxicity (Linh, 2018). Similarly, scientists found the ecological impact of food waste in hotels, cafés, and restaurants nearly twice the size of the arable land in Lhasa (Lingen, et al., 2018). The economic value of the food wasted globally is approximately 1000 billion dollars per year, this figure rises to 2600 billion considering the hidden environmental costs that result from the phenomenon (Seberini, 2020). Most of the food wasted is actually in good shape and edible. It is calculated that 1.3 out of 1.6 gigatons of food waste consists of edible parts. If food wastage can be recovered, it will feed enough hungry people and animals, too (Linh, 2018).

(Karakas, 2021), (Okumus, 2019) Tekina & Ilyasov, (2017) and many researchers have found five-star hotel sector food waste management practices, challenges, and opportunities to reduce food waste in their research. Ofei & Mikkelsen, (2011) and many other researchers in the world found that causes of food waste   generated in the hotel sector. In Sri Lanka. Sandaruwani & Gnanapala, [2016], Wijesekara, & Sridarran, (2020), and other researchers have done a lot of studies about hotel waste and food waste management for hotels' sustainable business operation but the researchers have not found any research studies about hotel food waste-related causes, or reduction practices that hotels implement, and strategies in Sri Lanka. This study focuses on studying the causes of food waste and food waste management challenges and identifying the most sustainable food waste management practices to reduce food waste in the Galle district five-star hotels.

3. Methodology

The researcher has selected the qualitative, Inductive approach to conduct the research. In this study, the researcher attempts to find in-depth ideas about hoteliers' kitchen staff and management teams, contributing factors to generate hotel food waste, challenges faced by the hotel to reduce food waste, and sustainable strategies that can be adopted by five-star hotels. The case study research design has been selected for this study because it is a suitable research design to meet the research objectives. In the case of this study the researcher only stays as an observer and collects the experiences and opinions from the

people who have direct interactions with the subject phenomenon, the food waste management process at five-star hotels in the Galle district.

3.1. Research Site Selection Rationale

All five-star hotels located in the down south area Galle district have been selected as the population for this study. There are two registered five-star hotels located in the Galle district under the Sri Lanka Tourism Development Authority.

This research study is based on five-star hoteliers in the Galle district. The researcher selected down south area Galle district area five-star hotels because the Galle area is covered by a marvelous beach area and most of the foreign tourist attractions places are located in that area with high foreign destination places the hospitality sector has to provide various food and beverage as foreigners prepared. According to the Sri Lanka Tourism Development Authority (SLTDA, 2018), the annual tourist arrivals to Sri Lanka are around 1.4 billion. They have also mentioned that most of the registered villas and hotels are concentrated in the Galle district and south coast region has 35.04% of the total accommodation capacity in Sri Lanka. It is highlighted as the second-highest accommodation capacity in Sri Lanka. In Sri Lanka, the proportion of foreign guest nights spent in the south coast region was 35.8% and it was the second largest percentage in Sri Lanka the largest proportion of nights local guests spent reported in the south coast region was 34.73% in the 2018 year (SLTDA, 2018). It represented the highest rate for local guests in Sri Lanka in 2018. According to SLTDA, the largest proportion of night local guests spent was reported from the south coast as 37.21%. The Galle area can be identified as also the most local tourist attraction place in Sri Lanka. Due to different cultural changes, values believe their consumption pattern has a huge difference from foreigners' consumption patterns.

The researcher uses purposive sampling to collect data for the study because choosing participants for interviews such as the Executive chef, cooks, food and beverage manager, servers, and hotel manager as reliable data sources to conduct this study. Two five-star hotels in the Galle district were selected for the study. For this research study, primary data was used to conduct the analysis. The researcher attempts to gather in-depth information from the hotel kitchen staff and management team about their waste reduction strategies and the challenges faced by the hospitality sector in controlling food waste. The data for this study is collected through semi-structured depth interviews. The interview protocol has been developed by the researcher based on the literature review. Face-to-face interviews were conducted and due to the limited period, some interviews were conducted through the telephone. The researcher has conducted eleven interviews to collect data.

Thematic analysis is used to deduce the meaning behind the words people use and thematic analysis is also used in semi-structured interview data analysis. This is accomplished by discovering repeating themes in the text. These meaningful themes reveal key insights into data and can be quantified, particularly when paired with sentiment analysis.

To ensure the trustworthiness of this study the researcher used member checking and audit trial techniques. The data collected from interviewees provided much suitable information from their job experiences and hotel food waste management process and the researcher was able to achieve the aims of this study. Eleven hotel staff members were interviewed for this study.

Table 1: Respondent Protocol

Respondents	Male/Female	Age	Occupation	Education Level	Experience
RE/01	Male	54	Chef	Advanced Level	25 years
RE/02	Male	45	Chef	Advanced Level	08 years
RE/03	Male	38	Chef	Diploma	10 years
RE/04	Male	32	Chef	Advanced Level	05 years
RE/05	Male	50	HR Manager	Diploma	20 years
RE/06	Male	42	Manager	Degree	14 years
RE/07	Female	34	Stores officer in charge	Advanced Level	10 years
RE/08	Female	21	Clerk	Advanced Level	01 years
RE/09	Female	28	Stores Assistant	Advanced Level	08 years
RE/10	Female	24	Accountant	Diploma	03 years
RE/11	Male	33	Cleaning Supervisor	Ordinary Level	05 years

Source: Field data 2023

Interviews were held for 10 minutes to 20 minutes, to collect relevant data. The main purposes of this study are to identify the causes of food waste in five-star hotels in the Galle district, identify the challenges when managing food waste in that hotel sector, and examine sustainable food waste reduction strategies that can be adopted by five-star hotels in the Galle district. Mainly there are codes and themes developed according to the research objectives.

Table 2: Data Coding Table

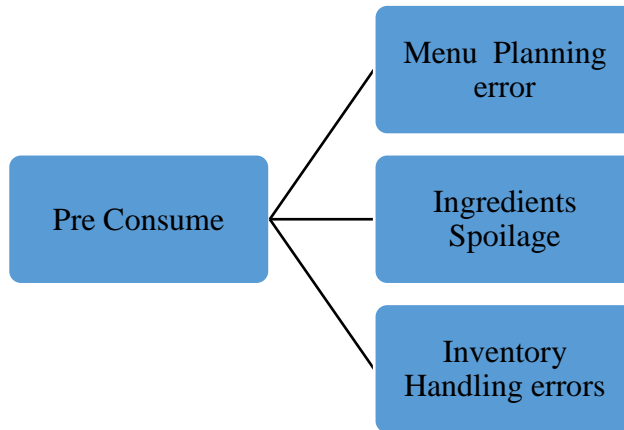| Themes	Sub themes	Sub-themes
Courses on food waste in five-star hotels in the Galle District	Pre consume	- Menu Planning error - Ingredients Spoilage - Inventory Controlling error
	Consume	- Taste of the food - Guest's attitudes - Buffet
Challenges facing when managing food waste	Internal challenges	- The staff of the hotel - Type of food service - Menu planning
	External challenges	- Ingredients Spoilage - Guest's attitudes
Food waste disposal practices	Current food waste management practices	- Bio gas unit - Donate to piggery farms - Produce fertilizer
Food waste reduction strategies	Strategies to reduce food waste	- Conducting waste audit - Awareness program for staff - Inventory controlling

Source: Developed by the Researcher 2023

4. Findings and Recommendations of the Study

The causes of food waste are the first question of this study and aim to identify the causes of food waste in five-star hotels in the Galle district. Therefore, identifying the causes of food waste is the first theme developed from theories. According to the respondent's information, the researcher developed themes,

categories, and codes based on the identification of causes of food waste in five-star hotels.

4.1. Pre-Consume

Figure 2: Pre-Consume
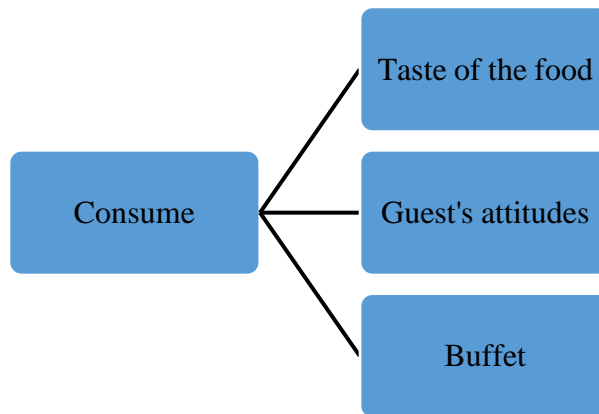

Source: Developed by Field Data

Identifying the contributing factors for food waste in five-star hotels in the Galle district can be divided into two parts; food pre-consume and food post-consume. Pre-consume means in the five-star hotel sector food waste can be generated before the guests consume and according to the respondent's information researcher identifies the menu planning error, ingredient spoilage, and inventory controlling as the food waste-generating factors under the pre-consume stage. Post-consumption means in five-star hotels food waste is generated after the food is consumed by the guests. In the hotel sector, some portion of food waste cannot be avoided anyway due to inedible parts of the ordering food.

Spoiled vegetables, fruits, and other food for use in hotel consumption generate food waste because some fruits and vegetables cannot be identified as low quality or spoiled at the time when it's ordered or bought by hotels. That is the considerable situation for food waste generated.

Inventory handling and machine maintenance is other contributing factor to food waste generation in five-star hotels. Most organizations use the first in first out (FIFO) for inventory control.

4.2. post-consume

Figure 3: Post Consume

Source: Developed by Field Data

Under the post-consumption stage, food goes down to waste after consumption by hotel guests. According to the respondent's information, the taste of the food is caused to generate food waste in the five-star hotel sector because consumption depends on the taste of the food.

More than half of the respondents referred to over-ordering and preparation as massive contributors to food waste. For example, one of the respondents with over 15 years of work experience as a chef in the hotel industry stated,

> *"I can say confidently that the majority of the waste comes from our staff sector. The buffets produce a lot of waste. We cannot advise him or her when sharing food on the plate. It is his or her to share as much as necessary that comes from his or her attitudes". (Respondent 01personal interview 2023)*

The buffet serving is another fact identified in the respondent interview and proven in the below statement.

Identifying the challenges faced when managing food waste is the second question of the study. Food waste is a complicated issue that involves many parties and many stakeholders, thus there remain many obstacles. The hotel sector faced various challenges when controlling and minimizing food waste. Because reducing the generation of some types of waste is difficult. Challenges mean difficulties in managing that waste. Challenges to reducing food waste can be divided into two parts such as internal challenges and external challenges.

4.3. Internal Challenges

Figure 4: Internal Challenges
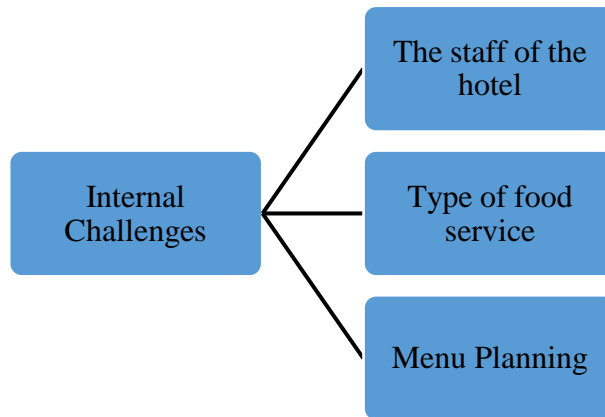
Source: Developed by Field Data

The staff of the hotel is the most critical challenge identified from respondent information. The below-mentioned statement will prove that. Most of the chef respondents said that the hotel staff behavior is affected by generated food waste.

> *"Our staff food service is free and they can use any food during eating time. New staff members get more food than they eat portions and dump it into bins although some inform banners and other posters." (Respondent 03 personal interview 2023)*

Another challenge the five-star hotel sector faces is the food service type. There are various types of food services such as Buffet service, Guerdon service, Room service, Silver service, and French service, etc.

> *"In our hotel widely use buffet service is more widely used than other types of food service. Our staff meals are provided as buffet service. This buffet service is a huge challenge because of more food waste origin then. And we are not able to control that because some portions of food in the buffet are not eaten."(Respondent 06 personal interview 2023)*

In addition to that, the hotel sector faces menu planning. Most of the hotel's menu planning is done by the chef according to their experience level and it plans according to the number of guests in the day.

4.4. External Challenges

Figure 5: External Challenges
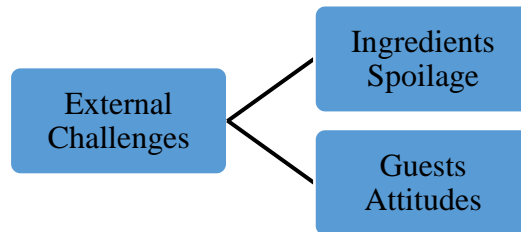
Source: Developed by Field Data

External challenges identified are that ingredient spoilage means some vegetables, dairy items, fish, and meat, and some fruits are spoiled before it's processed for consumption. Respondents said,

> *"We cannot control these ingredients' spoilage before processing, which is one major difficulty when managing food waste at our hotel. As an example some vegetables and meats are spoilage and that vegetable appearance is good but inside is spoilage."(Respondent 02 personal interview2023)*

Another external fact that was identified during the respondent discussion is guest attitudes. The guest's attitude depends on that person and anyone can't control that. These attitudes externally impacted food waste management in the hotel sector.

4.5. Food Waste Disposal Practices

The third objective of the study is to suggest sustainable food waste reduction strategies that can be adopted by the five-star hotel in Galle District.

Figure 6: Current Food Waste Management Practices
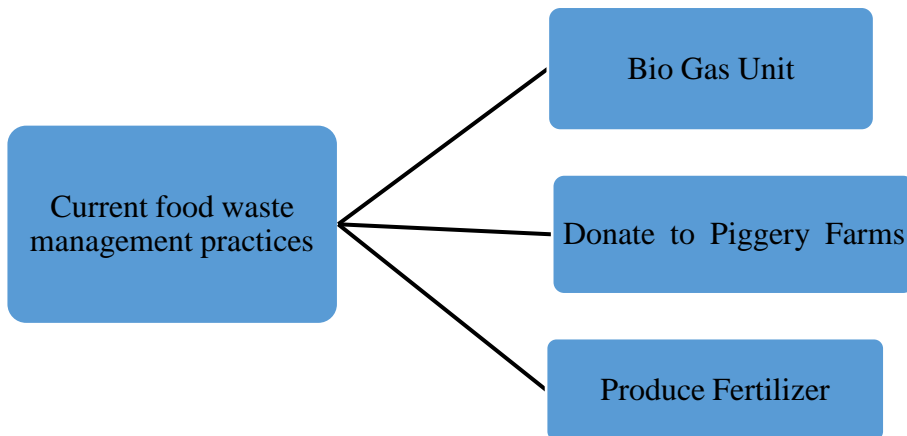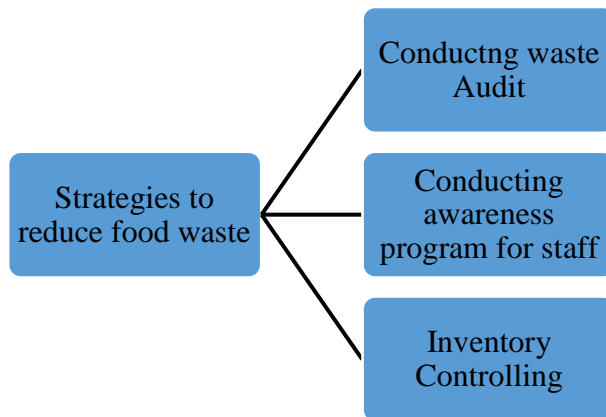

Source: Developed by Field Data

Hotel food waste management practices vary from one country to another and from one organization to another. Globally hotel waste management practices include prevention and reduction, recycling, donating, composting, tracking, improving ingredients purchase and storage, smart food merchandising, menu design, employee training, customer engagement, portion control, and service model changes. According to the respondent information above mentioned codes were identified.

Today most organizations commonly use biogas units for cooking activities that operate using generated food waste from that organization. It is proven in below below-mentioned statement.

> *"We have a biogas unit for the food waste coming in. We dump that waste to it and take biogas to cook the food in the staff cafeteria. A liquid fertilizer is produced from generated food waste."(Respondent No 11 personal interview 2023)*

In the Galle district, five-star hotels use different strategies to reduce food waste at different stages.

Figure 7: Strategies to Reduce Food Waste

Source: Developed by Field Data

Most hotels commonly use food waste audits to reduce food waste and identify the higher waste-generating items during food production: serving and post-consumption. Food waste is mainly generated by people's attitudes because some people do not consider the waste. During the interviews, most of the respondents stated their hotel's staff has directly contributed to generating food waste because hotels provide meals to their staff for free therefore new workers have no idea about food waste and they dump some meals after eating. The five-star hotels in the Galle area use awareness programs for new staff members. It is stated in the below statement.

> *"Our old staff members know how to use food, but the new staff members do not know that, so we conduct a program to educate them.."(Respondent No 05 and 03 at personal interview 2023)*

Another piece of information identified during the personal interview is inventory control. One respondent stated the below-mentioned statement. Inventory controlling is affected to generate food waste at hotels. Because ordering more than food for requirements generates food waste. Inventory control is one strategy to reduce food waste.

5. Discussion

The first objective of this study is to identify the food waste-generating factors in five-star hotels in the Galle district. According to the respondent's information, the researcher identified the two types of food waste-generating factors at five-star hotels. One type is consume-stage food waste such as menu planning, ingredient spoilage, and inventory controlling errors. Another food

waste-generating type of five-star hotel was posted to consume stage food waste such as the taste of the food, guest's attitudes, and buffet. In five-star hotels, food waste is generated before and after food consumption. According to (Kasavan, et al. 2019) in their study, they found poor hotel management and policy, lack of skills in food preparation, lack of facilities and food waste technology, non-implementation of waste audit and waste separation, unsustainable food consumption patterns of the customers, risk of food ingredients spoilage, ineffective communication, and inadequate education and awareness are the generating factors of food waste in hotels.

The second objective of this study is to identify the challenges when managing food waste in the five-star hotel sector. As it has been pointed out throughout this study food wastage is an issue that affects everyone and that is of concern for businesses in the hospitality and food service sector, it requires effective management. Effective management of food waste faces several challenges. This study revealed two types of food waste controlling challenges: external and internal. The external challenges include ingredient spoilage and guests' attitudes. The internal challenges associated with the staff of the hotel, type of food service, and menu planning. Guest's attitudes mainly impact the hotel food waste according to their consumption pattern. The five-star hotel sector is not able to control food waste without the contribution of customers. Customers are a major contributor to generating food waste in hotels (Silvennoinen, et al. 2015) (Mirosa, et al. 2018) (Sakaguchi, et al. 2018) found that education and raising awareness via effective communication can reduce customer plate waste. Over-ordering is a major factor in generating food waste under guests' attitudes. During the interview, the researcher identified the hotel's staff behavior and attitude directly affecting the hotel's food waste.

Food waste has an impact on the environment, society, and economy of the country. Therefore, every person has a responsibility to reduce food waste from the food supply chain. The five-star hotels follow some management practices to reduce and dispose of food waste. They also followed ISO 22000 food safety management systems and followed the hotel's mother company policy about food waste. In this study, the researcher identified food waste management practices followed by five-star hotels in the Galle district as food waste audit, biogas unit for food disposal, donating piggery farms, and producing fertilizer. Some Food waste management practices are caused to generate and expose some harmful gasses to the environment, such as carbon dioxide, methane, etc. It has also been found that food waste management practices are key in ensuring business sustainability by leveraging hotel resources in sustainably serving customers; however, food waste remains one of the most complicated issues in hotels since it is caused by various factors and at every stage of the food supply chain.

In the Galle district, five-star hotels can minimize food waste using hotel staff training, new technology such as Artificial Intelligence (AI) approaches for food waste management, food waste management software such as (TENZO, Winnow Solutions) and innovative inventory management software such as (TotalCtrl) and community composting method. Used for reducing food waste, and conducting proper awareness programs for especially local guests. Reducing food waste also helps to reduce food and labour costs, maintaining higher profits, sustainability, and business ethics.

6. Conclusion

This study investigated the primary reasons for food waste and the challenges faced by five-star hotels in managing food waste. This study suggests sustainable strategies that can be adopted by five-star hotels to reduce food waste. The researcher identifies menu planning, ingredient spoilage, inventory controlling errors, the taste of the food, guests' attitudes, and the buffet. The main challenges faced by the five-star hotel sector when tackling food waste such as the staff attitudes, type of food service, menu planning, ingredients spoilage, and guest attitudes. In the Galle district five-star Hotel's management is concerned about their food waste control, so they use some awareness programs especially for their staff community. In this study the researcher mainly identified from interviews the main factor for food waste is guest's attitudes. Hotel management follows some policies when preparing food and following food waste management practices such as waste audits, the use of biogas for cooking activities from wasted food, producing liquid fertilizer, and donating wasted food to piggery farms for feeding animals.

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EFFECT OF SOCIAL MEDIA INFLUENCER INVOLVEMENT ON TOURISTS' TRAVEL INTENTIONS: MEDIATING ROLE OF TRAVELER AUTHENTICITY AND DESTINATION IMAGE

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Abstract

Although TikTok recently emerged as a travel marketing medium, how TikTok influences tourists' perceptions of travel experience and travel intention remains unclear. This paper addresses this void by constructing a structural model that delineates the mechanism by which the involvement of social media influencers with TikTok influences tourists' travel intention through authenticity and destination image. Following the positivism research philosophy and deductive research approach, a questionnaire survey is administered. The questionnaire was distributed among 384 tourists, and data was analyzed using partial least squares- structural equation modelling. Findings revealed that social media influencers' involvement with TikTok increases object-based and existential authenticity and cognitive and affective images of travel experience, ultimately influencing travel intention. Moreover, object-based and existential authenticity and cognitive and affective images of travel experiences mediate the link between social media influencers' involvement with TikTok and tourists' travel intentions. The results add to tourism marketing literature by blending authenticity with the cognitive-affective model in the context of TikTok travel marketing in Sri Lanka.

Keywords: Affective image, cognitive image, existential authenticity, object-based authenticity, TikTok, travel intention.

1. Introduction

In recent years, user-generated content (UGC)-based social media platforms have been widely recognized as a novel marketing medium for promoting tourist destinations (Wengel et al., 2022; Zhu et al., 2022). Prior literature indicates that today, most tourists get travel ideas from social media (Gamage et al., 2021). Among the different social media platforms available today, TikTok is identified as a perfect marketing medium for promoting tourism (Wengel et al., 2022), as *"TikTok is a massively popular app that lets users create and share videos up to 60 seconds long"* (Li, 2022). Moreover, Zhu et al. (2022) stated that TikTok is a terrific platform for travel brands looking to reach new customers. As users of TikTok are incredibly active and thirsty for exciting and genuine materials, a novel concept arose called TikTok travel marketing, which refers to *"...the use of TikTok to increase a travel company's reach, build the brand, increase website traffic, increase destination awareness, engage travellers, and boost bookings"* (Wengel et al., 2022). Consequently, with 20.8 billion views, the hashtag #TikTokTravel has become one of the most well-liked hashtags on the app. Using this hashtag paved the way for tourism and travel businesses to have high visibility on TikTok and market their destinations or activities (Wengel et al., 2022). Accordingly, today, many travel and tourism brands worldwide promote travel through paid partnerships with social media influencers (Zhu et al., 2022), and Sri Lanka is not an exception.

According to Herath (2020), TikTok has become the fastest-growing social media platform ever, making it one of the fastest-growing business opportunities for marketers in Sri Lanka. However, on the one hand, in the Sri Lankan context, most advertising firms are still reluctant to use TikTok as a marketing medium due to the assumptions that there is still less recognition for their business clients on TikTok and that TikTok is just a social media platform for fun and joy for youth (Herath, 2020). In contrast, on the other hand, in Sri Lanka, #travel is one of the highest-rated hashtags in TikTok (Lanka Hashtags for TikTok, 2019). But there is still a question, as many Sri Lankan travel and tourism brands have not adequately leveraged this next-generation platform to entice new travellers and promote travel and tourism. Further, many travel and tourism brands have not hired social media influencers to promote their properties through TikTok.

This paper identifies two major under-researched areas related to hiring social media influencers to promote tourist destinations in prior literature. First, a rigorous review of previous literature uncovered that only a few studies have empirically studied how the involvement of social media influencers shapes tourists' travel experience and intentions (Li, 2021; Zhu et al., 2022). Second, although it was generally accepted that the authenticity of the message social media influencers create significantly influences visitors' perceptions and travel

experience, how this mechanism works in the context of tourist encounters in TikTok has not been comprehensively studied yet (Xu et al., 2022; Zhu et al., 2022). Consequently, this paper attempts to bridge this gap in prior literature by investigating how social media influencer involvement influences tourists' travel intentions, explicitly referring to TikTok travel marketing practices in Sri Lanka.

The results of this paper make two vital contributions. First, this paper is one of the first attempts to empirically investigate how social media influencers' involvement impacts tourists' travel experiences and intentions regarding TikTok encounters in the Sri Lankan context. Second, the findings offer insights for destination marketers and tourist practitioners to understand how they can promote travel destinations and activities based on tourist encounters in TikTok.

2. Theoretical Background and Hypotheses Development

2.1. UGC, TikTok, Social Media Influencers, and Travel and Tourism Marketing

User-generated content (UGC) is defined as *"material that people publish on social media in the form of images, videos, or text"* (Li, 2021, p. 176). Prior literature emphasized that UGC is an effective marketing tool to promote tourist destinations and travel packages (Gamage et al., 2021), as UGC is believed to have higher authenticity and credibility than conventional tourism data sources. Thus, UGC has significantly affected tourists' travel decisions recently (Narangajavana Kaosiri et al., 2019). Among many social media platforms that generate UGC, TikTok is currently the trendiest and most widely used UGC-based social media platform because of its visual aesthetic and presentation modality (Zhu et al., 2022). Consequently, it has steadily taken over people's lives, and most business firms have started using it to promote their products and services (Li, 2021), and the tourism industry is not an exception. In most instances today, many travel and tourism firms hire social media influencers to create and disseminate travel-related content through TikTok.

Social media influencers constantly create useful content to attract a following via interactive social media platforms (Gamage & Ashill, 2023). They are different from conventional celebrities who are famous for their theatrical talents and thus have gained fame through traditional mass media (Hudders et al., 2021). Because of that, social media influencers are regarded as more credible than celebrities in influencing followers' purchasing behaviour, and their reviews are considered more authentic and relatable by their followers (Vrontis et al., 2021). Consequently, in travel and tourism, in recent times, social media influencers have begun to incorporate a more extensive portrayal of their travel and tourism experiences via TikTok to inspire followers and stimulate

their travel intentions (Zhu et al., 2022). However, in the context of TikTok marketing in Sri Lanka, how the authentic and credible content created by social media influencers shapes tourists' travel intentions was not adequately studied in detail.

2.2. Integrating Notions of Authenticity, Image, and Travel Experience

Concerning the context of travel and tourism, authenticity is defined as *"a phenomenon relating to the thing or associated with the tourism experience"* (Reisinger & Steiner 2006, p. 299). According to Wang (1999), two types of authenticity may be distinguished in how tourists perceive their travel destinations: existential and object-based authenticity (which includes objective and constructive authenticity). Object-related authenticity, as the name indicates, refers to how tourists draw objective perceptions about travel destinations based on the authenticity of objects such as art, artefacts, or buildings they see in the destination (Reisinger & Steiner 2006). In contrast, existential authenticity focuses more on tourists' subjective perceptual experiences and can be defined as *"the potential state activated by tourism activities."* These two aspects of the authenticity of travel experience have been widely used and accepted in tourism literature (Zhu et al., 2022). Consequently, it is decided to extend Wang's (1999) two-dimensional view of authenticity to study TikTok tourist encounters in this paper.

Prior literature suggests that the destination image affects tourist travel decisions rather than its actual traits. This paper defines the destination image as *"all that the destination evokes in the individual; any idea, belief, feeling or attitude that tourists associate with the place"* (Alcaniz et al., 2009, p. 716). As implied in the definition, it is conceptualized primarily via two dimensions: cognitive and affective components. The cognitive-affective model proposes that cognitive image focuses on evaluating the objective attributes of a place, emphasizing attitudes and knowledge of the destination, while affective image centers on emotional responses related to the characteristics of the destination, such as excitement, pleasure, arousal, and relaxation (Baloglu & McCleary, 1999). This model is currently the most widely used conceptualization in studies about the destination image.

Grounded on Wang's (1999) two-dimensional view of authenticity and the cognitive-affective model (Baloglu & McCleary, 1999), this paper postulates how the involvement of social media influencers through TikTok inspires tourists' travel intentions, as shown in Figure 1.

Figure 1: Research Model
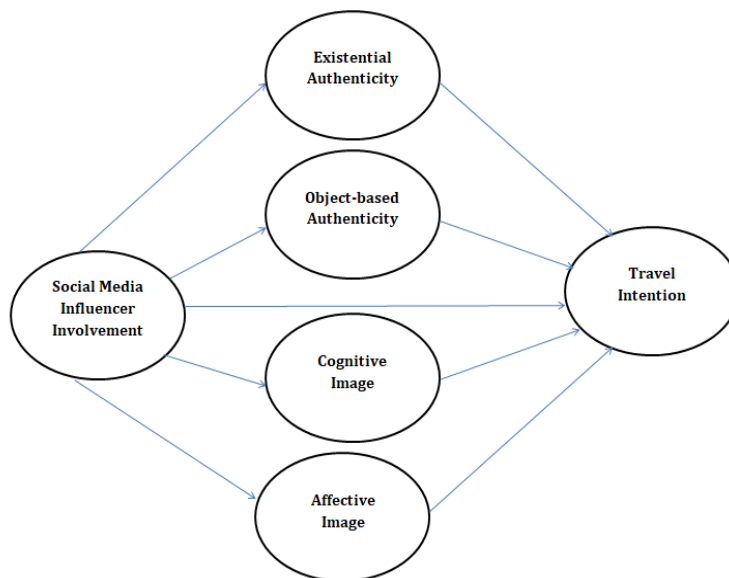
Source: Authors' Compilation

2.21. Social Media Influencer Involvement and Travel Intention

The link between celebrity involvement and travel intention is well-researched in tourism literature (Zhu et al., 2022). Most scholars emphasized that celebrity involvement positively influences travel intention, stimulating tourists' travel-related decision-making process (Li et al., 2022; Zhu et al., 2023). As social media influencers are still emerging (Gamage & Ashill, 2023), the relationship between social media influencers and travel intention has not been adequately studied yet. On the other hand, TikTok has now gradually started to play a vital role in tourists' decision-making process (Li, 2021). However, there is a lack of literature investigating the relationship between social media influencer involvement with TikTok and travel intention. Therefore, this paper postulates that:

H1: Social media influencers' involvement with TikTok positively predicts tourists' travel intentions.

2.2.2 Social Media Influencer Involvement and Authenticity and Image of Travel Experience

So far, fewer prior studies have investigated the relationships between social media influencers' involvement and authenticity and the image of the travel experience in tourism literature. Zhu et al. (2022) suggest that social media influencers' involvement influences the authenticity of the travel experience by showing attraction objects in travel destinations through videos posted on social media. As they further emphasized, the travel experiences presented by social media influencers through TikTok videos will further enhance tourists' authenticity of the travel experience, as tourists tend to be emotionally attached to social media influencers as they feel that social media influencers are highly relatable and credible.

Applying object-based and existential authenticity notions in tourism literature emphasizes that the interactions between the tourism experience and objects primarily influence tourists' travel-related decisions (Atzeni et al., 2022). Regarding the context of TikTok travel videos, these videos can portray the real interactions between social media influencers and locals and local attractions in tourist destinations while highlighting the natural scenery of the destinations. Accordingly, it is hypothesized that:

H2: Social media influencers' involvement with TikTok positively predicts tourists' object-based authenticity of travel experience.

H3: Social media influencers' involvement with TikTok positively predicts tourists' existential authenticity of travel experience.

Several studies suggest that celebrity involvement positively impacts shaping destination images (Kim & Chen, 2020; Zhou et al., 2023). However, social media influencers being an emerging concept, how social media influencers shape tourists' travel destinations by creating a favourable image of the travel destination has not been adequately researched in prior literature (Irfan et al., 2022). However, recently, it was revealed that social media influencers' portrayals of TikTok travel videos act as powerful forces that stimulate tourists' perceptions about travel destinations by creating a positive image (Roostika & Yumna, 2023). Hence, the following hypotheses are proposed.

H4: Social media influencers' involvement with TikTok positively predicts tourists' cognitive image of travel experience.

H5: Social media influencers' involvement with TikTok involvement positively predicts tourists' affective image of the travel experience.

2.2.3. Authenticity and Image of Travel Experience and Travel Intention

Prior literature has explored the link between object-based authenticity, existential authenticity, and tourists' travel intention, considering different travel experiences and contexts (Atzeni et al., 2022; Zhu et al., 2023). However, in the context of tourism marketing literature, studies on how tourists' perception of authenticity in TikTok travel experiences shared by social media influencers impact their travel intentions are missing. This paper addresses this void by proposing the following hypotheses.

H6: Tourists' object-based authenticity of travel experience through TikTok positively predicts their travel intentions.

H7: Tourists' existential authenticity of travel experience through TikTok positively predicts their travel intentions.

Prior literature on destination image suggests destination image is a vital determinant of tourists' travel-related decisions (Kim & Chen, 2020; Zhou et al., 2023). The positive association between the destination image and travel intention is a well-established notion in tourism literature (Li, 2021; Zhou et al., 2023). However, it has not been explicitly studied in the context of TikTok travel marketing. Usually, a favourable destination image stimulates a positive tourism experience with a selected tourist destination, enhancing tourists' travel intention to the destination. Hence, it is hypothesized that:

H8: Tourists' cognitive image of travel experience through TikTok positively predicts their travel intentions.

H9: Tourists' affective image of travel experience through TikTok positively predicts their travel intentions.

Finally, based on the above discussion it was hypothesized that:

H10: The relationship between social media influencers' involvement with TikTok and tourists' travel intentions is mediated by tourists' (a) object-based authenticity, (b) existential authenticity, (c) cognitive image, and (d) affective image.

3. Research Method

Following the positivism research philosophy and deductive research approach, this paper used an online survey targeting TikTok travel-related video followers in Sri Lanka to test the hypotheses offered. The respondents were tourists belonging to Generation Z, who are frequent TikTok users (measured as using TikTok at least 3 to 5 hours per week) and follow at least one TikTok influencer related to travel and tourism. Generation Z tourists were purposely targeted, as 80% of TikTok users in Sri Lanka belong to this category (Herath, 2020). Further, tourism and travel firms are targeting Generation Z because 70% are

interested in vacation travel, and 75% of parents involve their children in choosing a family holiday (Tseng et al., 2021).

A seven-point Likert scale (1= strongly disagree to 7 =strongly agree) was used to operationalize the key constructs of the study. Social media influencer involvement was measured using items adapted from Yen and Croy (2016). In contrast, object-based and existential authenticity was measured using items adapted from Kolar and Zabkar (2010) and Teng and Chen (2020). Cognitive and affective images of travel experience were measured using items adapted from Woosnam et al. (2020). Travel intention was measured using items adapted from Li (2019).

Before commencing the survey, the questionnaire was pre-tested with three academics specialized in tourism marketing to assess the adequacy of the items and the appropriateness of the measurement scales. Additionally, another pre-test was carried out with ten tourists to determine the clearness and understandability of the questions. Identifying the respondents was challenging because TikTok marketing is a relatively emerging marketing practice in Sri Lanka; thus, a suitable sampling frame was unavailable. Therefore, using purposive sampling approach, 384 tourists belonging to Generation Z, who are frequent TikTok users and follow at least one TikTok influencer related to travel and tourism were selected as the sample. Before attending the survey, the respondents had to answer filtering questions related to their TikTok usage and TikTok travel influencer following habits.

The respondents were then asked to view a selected TikTok travel-related video. The TikTok video was obtained from the account of an authentic TikTok travel influencer in Sri Lanka, who shares TikTok videos related to travel and tourism. However, the identity of the TikTok travel influencer is not revealed to ensure the credibility of the video. After viewing the video, the respondents were requested to complete the questionnaire.

Since Partial Least Squared Structural Equation Modeling (PLS-SEM) is perfect when dealing with small sample sizes, and it didn't have rigid requirements for data distribution (Hair et al., 2021), it was used for hypotheses testing.

4. Results and Discussion

4.1. Sample Profile

The final data set included 320 effective responses. There was a slightly higher number of males (60.1%) than female respondents (39.9%), and most respondents were following a bachelor's degree (91.3%), aged between 20 and 22 (76.9%).

4.2. The Measurement Model

A confirmatory factor analysis was conducted to assess the overall quality of the measurement model. As shown in Table 1, PLS outer loadings, Cronbach's Alpha, and composite reliability (CR), exceeded 0.7, indicating the measurement items are reliable (Hair et al., 2021). Moreover, as shown in Table 1, all average variance extracted (AVE) values exceed the minimum threshold of 0.5, indicating acceptable convergent validity. As per the Fornell-Larcker criterion, the square root of AVE for each construct was greater than inter-item correlations (Fornell & Larcker, 1981), and all heterotrait–monotrait (HTMT) ratios were less than 0.9 (see Table 2), demonstrating acceptable discriminant validity.

Table 1: Evaluation of the Measurement Model

Measurement Item	PLS Outer Loadings	Cronbach's Alpha	CR	AVE
Social Media Influencer Involvement (SMI)		0.914	0.930	0.626
SMI1: SMI has a central role	0.851			
SMI2: Enjoy SMI	0.817			
SMI3: Enjoy discussing SMI	0.798			
Existential Authenticity (EA)		0.819	0.951	0.617
EA1: Prefer special arrangements and events connected to the destination	0.735			
EA2: Inform about the destination culture after viewing the TikTok video	0.863			
EA3: Enjoy the unique TikTok culture life experience	0.797			
Object-based Authenticity (OA)		0.895	0.923	0.706

OA1: The overall image and impression of the TikTok video is inspiring	0.849			
OA2: Like the peculiarity of the video's internal content design	0.816			
OA3: TikTok video reflected the culture of the destination in an authentic way	0.811			
OA4: Prefer the information presented in the TikTok video	0.798			
Cognitive Image (CI)		0.754	0.857	0.661
CI1: Community amenities	0.819			
CI2: Natural attractions	0.834			
CI3: Cultural attractions	0.847			
Affective Image (AI)		0.771	0.820	0.655
Gloomy / Exciting	0.901			
Distressing / Relaxing	0.897			
Unpleasant / Pleasant	0.887			
Sleepy / Arousing				
Travel Intention (TI)		0.881	0.918	0.737
TI1: Will visit the destination	0.881			
TI2: Will consider a trip to the destination	0.876			
TI3: Attractive place deserving a visit	0.841			

Source: Output of Data Analysis

Table 2: Discriminant Validity Assessment

Construct	Fornell-Larcker Criterion						Heterotrait–Monotrait (HTMT) Ratio					
	SMI	EA	OA	CI	AI	TI	SMI	EA	OA	CI	AI	TI
SMI	0.791						0.464					
EA	0.687	0.785					0.626	0.128				
OA	0.414	0.579	0.840				0.394	0.502	0.398			
CI	0.654	0.451	0.376	0.813			0.554	0.309	0.332	0.692		
AI	0.097	0.13	0.234	0.191	0.809		0.053	0.02	0.156	0.167	0.098	
TI	0.256	0.298	0.123	0.367	0.12	0.858	0.159	0.249	0.094	0.283	0.053	0.496

Note: Social Media Influencer Involvement (SMI), Object-based Authenticity (OA) Existential Authenticity (EA), Cognitive Image (CI), Affective Image (AI), Travel Intention (TI)

Source: Output of Data Analysis

4.3 Hypotheses Testing

Next, the structural model was tested using the bootstrapping technique with 5,000 resamples. As the findings indicate, social media influencers' involvement with TikTok positively influences object-based ($\beta = 0.467$, $p < 0.05$), existential authenticity ($\beta = 0.311$, $p < 0.05$), and cognitive ($\beta = 0.256$, $p < 0.05$), and

affective images of travel experience (β = 0.211, p < 0.05), ultimately influencing travel intention (β = 0.415, p < 0.05). Further, findings indicate that object-based and existential authenticity and cognitive and affective images of travel experience positively influence tourists travel intentions (β = 0.356, p < 0.05; β = 0.211, p < 0.05; β = 0.208 p < 0.05; β = 0.197, p < 0.05). Thus, all hypotheses are supported.

Further, the effect sizes (f^2 values) are calculated, and all f^2 values ranged from 0.049 to 1.324, indicating small to large effect sizes (Hair et al., 2021). Further, the variance explained (R^2) values by object-based authenticity, existential authenticity, cognitive image, affective image, and travel intention were 47.1%, 51.3%, 44.9%, 45.8%, and 43.1%, respectively, indicating a robust research model.

4.3.1 Testing the Mediating Effects

Table 3 summarizes the assessment of the proposed mediating effects related to object-based authenticity, existential authenticity, and cognitive and affective images of travel experience. Results indicated object-based authenticity, existential authenticity, and cognitive and affective images of travel experience mediate the relationship between social media influencers with TikTok and travel intention, thus supporting H10(a) to H10(d). The findings are in line with Li (2021), Zhou et al. (2023), and Roostika and Yumna (2023), who emphasized the potentiality of tourists' authenticity and destination image in mediating the link between social media influencer involvement and tourists' travel intention.

Table 3: Assessing the Mediating Effects

	Direct Effect	Indirect Effect	Mediation
SMI --- EA ----TI	0.415	0.147	Yes
SMI --- OA ----TI	0.415	0.047	Yes
SMI --- CI ----TI	0.415	0.111	Yes
SMI --- AI ----TI	0.415	0.097	Yes

Note: Social Media Influencer Involvement (SMI), Object-based Authenticity (OA) Existential Authenticity (EA), Cognitive Image (CI), Affective Image (AI), Travel Intention (TI)

Source: Output of Data Analysis

5. Conclusion and Recommendations

This paper aims to investigate the mechanism by which the involvement of social media influencers with TikTok inspires tourists' travel intentions through authenticity and destination image. Based on Wang's (1999) two-dimensional view of authenticity and the cognitive-affective model (Baloglu & McCleary, 1999), a structural model is proposed and empirically tested with data collected from 320 tourists in Sri Lanka. Findings revealed that social media influencers' involvement with TikTok increases object-based and existential authenticity and cognitive and affective images of travel experience, ultimately influencing travel intention. Further, as hypothesized, it was revealed that object-based and existential authenticity and cognitive and affective images of travel experiences mediate the positive link between social media influencers' involvement with TikTok and travel intention.

5.1 Implications for Theory and Practice

Findings from this paper have several notable theoretical implications. First, this paper extends the applicability of Wang's (1999) two-dimensional view of authenticity and the cognitive-affective model into tourism marketing literature by examining how social media influencers' involvement impacts tourists' travel intentions regarding TikTok encounters in the Sri Lankan context. Second, this paper contributes to tourism marketing literature, revealing the significant role of object-based and existential authenticity and cognitive and affective images of travel experience in formulating tourists' travel intention concerning TikTok encounters.

From a practical perspective, this paper demonstrated that the tourists' perceptions towards visiting a tourist destination can be stimulated via the involvement of social media influencers with TikTok. Therefore, in the future, destination marketers and tourist practitioners may consider promoting tourist destinations by collaborating with social media influencers promoting travel and tourism through TikTok, especially when promoting travel packages. Further, this paper revealed that object-based and existential authenticity and cognitive and affective images of travel experience mediate the relationship between social media influencers' involvement with TikTok and travel intention. This indicates that destination marketers and tourist practitioners should request social media influencers to produce stories about the travel destinations by preserving the natural scenery of the destination as much as possible to stimulate tourists' travel intentions.

5.2 Limitations and Future Research Directions

Despite the contributions made by this paper to tourism marketing literature, some limitations should be kept in mind when interpreting the results. First, this

paper focused only on Generation Z tourists in Sri Lanka, which may limit the applicability of the findings to other tourist destinations. Hence, caution should be taken when applying these findings to other tourists in the country or different research contexts. Second, the study used a cross-sectional research design, which limits the applicability of the identified causal relationships between variables to other research settings. Future research may use longitudinal or experimental research designs to overcome this limitation. Additionally, future research could include additional variables to provide a more complete comprehension of the factors influencing tourists' travel intentions regarding TikTok travel marketing. It is recommended to conduct qualitative studies in the future to provide more in-depth insights into the identified mechanism. Lastly, researchers recommend future researchers consider international tourists' travel intentions and add value to develop the tourism sector in Sri Lanka.

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IMPACT OF HUMAN RESOURCE MANAGEMENT PRACTICES ON THE EMPLOYEES' TURNOVER INTENTION WITH SPECIAL REFERENCE TO HOUSEKEEPING EMPLOYEES IN DAMBULLA

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Abstract

The hospitality industry in Sri Lanka plays a crucial role in generating foreign revenue. This research aims to explore the impact of Human Resource Management (HRM) practices on the turnover intentions of housekeeping employees in hotels located in the Dambulla region. In line with existing literature, five HRM practices, namely training and development, working conditions, supervisory support, job security, and compensation, have been selected for investigation. The central research question revolves around the potential influence of these HRM practices on the turnover intentions of housekeeping staff working in hotels. The study was conducted in Sri Lanka, focusing on housekeeping employees in hotels. Using a convenience sampling method, an online survey was administered, and 48 employees from various hotels in Dambulla responded to a Google form. The collected data was analyzed using a 5-point Likert scale, involving descriptive assessment, correlation analysis, and regression analysis. The research formulated five hypotheses to determine the relationship between HRM practices and employee turnover intentions. The results of the study confirmed two hypotheses while rejecting the remaining three. Specifically, a significant negative correlation was identified between turnover intention and both training and development, as well as supervisory support. Consequently, it is recommended to extend the duration and scope of training programs and enhance supervisory support to reduce turnover intentions. These recommendations carry significant implications for addressing the research findings. Furthermore, the study suggests exploring additional strategies for improving HRM practices to mitigate turnover intentions. Future researchers interested in investigating employee turnover intentions are encouraged to replicate similar studies in broader regions of Sri Lanka and consider larger sample sizes for more generalized findings and comprehensive recommendations.

Keywords: Dambulla, hotels**,** housekeeping employees, human resource practices**.**

1. Introduction

In the evolving landscape of contemporary organizational management, Human Resource Management (HRM) practices have garnered substantial recognition for their profound impact on employee outcomes and overall organizational performance. As acknowledged by Worland (1988), the dynamics of the workforce and their commitment to the organization have emerged as pivotal factors influencing an organization's success. One critical aspect that has received considerable attention is employee turnover, defined as the movement of employees out of an organization (Kappa, 1997). High turnover rates can disrupt organizational stability and productivity, making it imperative to understand the factors contributing to employees' intention to leave their positions (Jude Anjana D.M.M.S, 2007).

This research endeavour seeks to explore the intricate relationship between HRM practices and employees' intention to leave their positions, with a specific focus on housekeeping employees in hotels within the Dambulla area of Sri Lanka. The hospitality industry in Sri Lanka plays a significant role in the national GDP, encompassing various sectors, including hotels, restaurants, licensed clubs, and motels (R. Singh, 1992) (Annual Statistical Report 2018 of Sri Lanka Tourism Development Authority). The tourism sector, overseen by the Sri Lanka Tourism Development Authority, aims to promote economic activities related to tourism and hospitality through strategic initiatives directed at both local and international investors. Within this context, Dambulla stands as a notable destination renowned for its wildlife attractions and historical sites, attracting a substantial influx of foreign tourists (Connell, J, Ferres, N., & Travaglione, 2003).

The housekeeping department within hotels holds a pivotal role in ensuring the cleanliness, maintenance, and overall appeal of lodging properties. Guestrooms, often referred to as the heart of any hotel, significantly contribute to revenue generation. The efficiency and effectiveness of the housekeeping department directly impact guest experiences. Human resource management practices in this section play a critical role in shaping employee attitudes and behaviour. These practices encompass diverse HRM policies and procedures, with a particular focus on recruitment, training, development, appraisal, and organizational commitment, all synchronized with the main business objectives of the organization (Kadiresan et al., 2015). However, it's important to note that sometimes HRM factors can lead to employee dissatisfaction, and stress, and ultimately result in higher employee turnover, which poses significant challenges for the hospitality sector, necessitating continuous recruitment, training, and increased costs.

According to Yang, Wan, and Fu, several factors can be identified as determinants of employee turnover, including salary and fringe benefits, working hours, workload, work pressure, training and development, leadership, career plans, and family factors. Hotels often grapple with high labour turnover as a part of the workgroup norm, and employees may perceive limited career development opportunities (Santhanam et al., 2017). Poulston (2008) further emphasizes that employee turnover tends to be high in non-managerial positions within the hospitality industry due to the unique and diverse workforce and the dominant requirement of non-technical skills (Santhanam et al., 2017).

Effective HRM practices have been demonstrated to foster trust in top management, which in turn reduces turnover intentions. Conversely, inadequate HRM practices can lead to employee dissatisfaction, stress, and an increased intention to leave the organization. From the employees' perspective, HRM practices are seen as the organization's efforts to support and enhance their career development, thus influencing their attitude toward the organization and their willingness to stay (Hemdi, 2005). However, there are instances when HRM practices fall short of providing the best facilities for employees, leading them to consider leaving the organization.

Given the unique challenges faced by the hospitality industry, characterized by diverse workforces and the dominant need for non-technical skill sets, addressing turnover intentions becomes a critical task. This research aims to investigate the impact of specific HRM practices, including training and development, working conditions, supervisory support, job security, and compensation, on the turnover intention of housekeeping employees in hotels in Dambulla. By comprehending the relationships between these practices and turnover intention, this study aspires to provide insights that can inform HRM strategies, fostering employee retention and enhancing organizational performance. In doing so, it contributes to the ongoing discourse on the significance of HRM practices in shaping the success of organizations in the ever-evolving landscape of modern organizational management.

1.1. Research Question

1.1.1. Primary Research Question

1. Do human resources management practices impact the turnover intention of housekeeping employees in hotels?

1.1.2. Secondary Research Questions

1. Does the training and development of housekeeping employees in hotels significantly affect their turnover intention?

2. Do working conditions significantly affect the turnover intention of housekeeping employees in hotels?
3. Does the level of supervisory support significantly affect the turnover intention of housekeeping employees in hotels?
4. Does job security significantly affect the turnover intention of housekeeping employees in hotels?
5. Does the relationship between compensation significantly affect the turnover intention of housekeeping employees in hotels?

1.2. Research Objectives

1.2.1. Primary Research Objectives

1. To assess the impact of human resources management practices on the turnover intention of housekeeping employees in hotels

1.2.2. Secondary Research Objectives

1. To examine the influence of training and development programs on the turnover intention of housekeeping employees in hotels.

2. To investigate the effect of working conditions on the turnover intention of housekeeping employees in hotels.
3. To evaluate the relationship between supervisory support and the turnover intention of housekeeping employees in hotels.
4. To assess the impact of job security on the turnover intention of housekeeping employees in hotels.
5. To analyze the relationship between compensation and the turnover intention of housekeeping employees in hotels.

2. Literature Review

In the evolving landscape of contemporary organizational management, Human Resource Management (HRM) practices have garnered substantial recognition for their profound impact on employee outcomes and overall organizational performance. As acknowledged by Worland (1988), the dynamics of the workforce and their commitment to the organization have emerged as pivotal factors influencing an organization's success. One critical aspect that has received considerable attention is employee turnover, defined as the movement of employees out of an organization (Kappa, 1997). High turnover rates can disrupt organizational stability and productivity, making it imperative to understand the factors contributing to employees' intention to leave their positions (Jude Anjana D.M.M.S, 2007).

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According to Yang, Wan, and Fu, several factors can be identified as determinants of employee turnover, including salary and fringe benefits, working hours, workload, work pressure, training and development, leadership, career plans, and family factors. Hotels often grapple with high labour turnover as a part of the workgroup norm, and employees may perceive limited career development opportunities (Santhanam et al., 2017). Poulston (2008) further emphasizes that employee turnover tends to be high in non-managerial positions within the hospitality industry due to the unique and diverse workforce and the dominant requirement of non-technical skills (Santhanam et al., 2017).

Effective HRM practices have been demonstrated to foster trust in top management, which in turn reduces turnover intentions. Conversely, inadequate HRM practices can lead to employee dissatisfaction, stress, and an increased intention to leave the organization. From the employees' perspective,

HRM practices are seen as the organization's efforts to support and enhance their career development, thus influencing their attitude toward the organization and their willingness to stay (Hemdi, 2005). However, there are instances when HRM practices fall short of providing the best facilities for employees, leading them to consider leaving the organization.

Given the unique challenges faced by the hospitality industry, characterized by diverse workforces and the dominant need for non-technical skill sets, addressing turnover intentions becomes a critical task. This research aims to investigate the impact of specific HRM practices, including training and development, working conditions, supervisory support, job security, and compensation, on the turnover intention of housekeeping employees in hotels in Dambulla. By comprehending the relationships between these practices and turnover intention, this study aspires to provide insights that can inform HRM strategies, fostering employee retention and enhancing organizational performance. In doing so, it contributes to the ongoing discourse on the significance of HRM practices in shaping the success of organizations in the ever-evolving landscape of modern organizational management.

Figure 1: Conceptual Framework
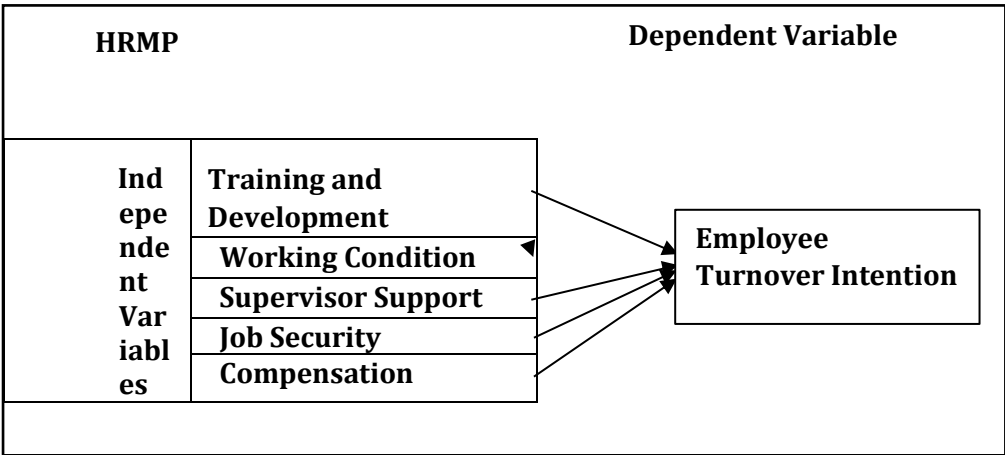
Source: Author's Compilation

3. Methodology
In the vibrant and dynamic landscape of the hotel industry, the housekeeping section stands as a pillar of essential support, ensuring the comfort and satisfaction of guests during their stays. Nestled in the heart of Sri Lanka, the picturesque town of Dambulla serves as a unique backdrop for this crucial facet of hospitality. Housekeeping employees, who form the backbone of this section,

play an integral role in upholding the reputation and standards of Dambulla s hospitality establishments. (Creswell, 2014).

The research philosophy chosen is post-positivist, emphasizing empirical analysis to identify causal relationships. The conceptualization and operationalization section presents definitions for the variables under study, including turnover intention, training and development, working conditions, supervisory support, job security, and compensation. The survey research approach is employed, utilizing a structured questionnaire to collect quantitative data from employees at the operational level within the housekeeping departments of classified and unclassified hotels in Dambulla, Sri Lanka. The sampling technique used is convenience sampling due to the exploratory nature of the study and the limited availability of such employees in Dambulla. The sample of this study comprises 48 employees working at the operational level in housekeeping departments in the specified hotels.

Table 1: Sampling Procedure

Category	Number of employees
Room boy	29
Senior Room boy	07
Linen and uniform attendant	06
Laundry attendant	06
Others	0

Source: Author's Own compilation

The primary data collection method involves a structured questionnaire divided into three parts: demographic data, HRM practices, and turnover intention. The Likert scale is utilized for responses, ranging from strongly disagree to strongly agree in data analysis reliability and validity of the questionnaire are assessed using Cronbach's alpha. Data analysis includes both descriptive statistics (mean, median, mode, standard deviation) and inferential statistics (correlation and regression analysis). Correlation analysis examines the relationship between independent and dependent variables, while regression analysis tests hypotheses and determines the impact of HRM practices on turnover intention.

4. Data Analysis and Results

4.1 Descriptive Statistics of Sample Profile

Table 2: Demographic Variables of the Study

Description	Frequency	(%)		Description	Frequency	(%)
Employee's Job Role				Education level		
Linen & Uniform Attendant	6	12.5		G.C.E A/L	29	60.4
Laundry Attendant	6	12.5		G.C.E O/L	12	25.0
Senior room boy	7	14.6		between Grades 5-10	6	12.5
Room boy	29	60.4		Primary	1	2.1
Gender				Service Experience		
Male	35	72.9		Below 1 year	18	37.5
Female	13	27.1		Between 1-5 years	16	33.3
				Between 5-10 years	5	10.4
Marital Status				Between 10- 15 years	5	10.4
Married	23	47.9		Between 15-20 years	3	6.3
Single	25	52.1		Above 20 years	1	2.1

Source: Survey Data

According to Table 2, the majority of housekeeping employees in the sample are "Room Boys." The second-highest number in the sample holds the position of "Senior Room Boy." The roles of "Linen & Uniform Attendant" and "Laundry Attendant" each account for 12.5%. When considering their experience, most housekeeping employees have less than 1 year of service, which represents 37.5% of employees in the sample. Additionally, 33.5% of housekeeping employees in the sample possess service experience ranging between 1 to 5 years. Similar frequencies such as a 10.4% percentage are observed for experience periods of 5 to 10 years and 10 to 15 years, respectively. Furthermore, a comparison between the job roles of Linen and uniform Attendants and Laundry Attendants reveals the presence of the same employees. In terms of gender distribution, it is evident that a significant portion of housekeeping employees are male, constituting 72.9% of the total, while the remaining 27.1% are female housekeeping employees. Regarding marital status, the majority of the selected sample is single, numbering 25 individuals,

which corresponds to 52.1%. The remaining 47.9% are married. Analyzing their education levels, the majority of housekeeping employees fall under the category of "G.C.E A/L," comprising 29 individuals or 60.4%. The second-highest educational category is "G.C.E O/L," with 12 individuals or 25% of the housekeeping employees. Those falling under the "Between Grades 5-10" range amount to 6 individuals or 12.5%. The last category is "Primary," accounting for 1 individual or 2.1% of the housekeeping employees. When examining the distribution of employees' net salaries, it becomes apparent that the largest segment of housekeeping employees, 66.7%, receives a net salary ranging from 15,001 to 25,000 LKR. Notably, none of the housekeeping employees receive a net salary greater than 45,000 LKR, as indicated by the 0% figure in the survey. The survey data also highlights those salaries below 15,000 LKR account for 6.3% of employees, while those falling between 25,001 and 35,000 LKR make up 25%. Finally, salaries ranging from 35,001 to 45,000 LKR constitute 2.1%.

4.2 Reliability Statistics

Table 3: Cronbach's Alpha Reliability Test

Construct	Cronbach's alpha Value
Training And Development (TAD)	0.709
Working Condition (WC)	0.829
Supervisory Support (SS)	0.798
Job Security (JS)	0.902
Compensation (CM)	0.709
Turnover Intention (TI)	0.896

Source: Survey Data

The item loadings (Table 3) assessed the indicator reliability. All indicator loadings met the threshold of 0.7 except. Thus, the indicator reliability was confirmed. As a result, all the dependent and independent variables in the questionnaire could be operationalized without dropping any item. This concludes that all the items in each construct of this study show a stable and consistent result.

4.3 Descriptive Statistics

Table 4: Descriptive Statistics

	Training and development	Working condition	supervisory support	Job security	Compensation	Turnover intention
Valid	48	48	48	48	48	48
Missing	0	0	0	0	0	0
Mean	2.5000	2.6198	2.7448	2.0313	2.4531	3.529
Std. Deviation	0.458374	0.633694	0.448074	0.757279	0.509631	0.655
Skewness	0.691	1.485	1.374	0.901	.919	-.908
Std. Error of Skewness	.343	.343	.343	.343	.343	.343
Kurtosis	0.268	2.491	1.100	-0.170	1.288	0.585
Std. Error of Kurtosis	0.674	0.674	0.674	0.674	0.674	0.674

Source: Survey data

Based on Table 4, the turnover intention's mean is 3.529 with a standard deviation of 0.655 suggesting that, on average, employees are leaning slightly towards having turnover intentions. In there, the negative Skewness of -0.908 indicates a negatively skewed distribution for turnover intention. This suggests that more employees have lower turnover intentions than those with higher intentions. When considering Training and development, it has a mean of 2.5000 with a standard deviation of 0.458374. Comparing this mean with the turnover intention mean, training and development are rated lower than the midpoint of 3. The Skewness of this variable, 0.691 indicates a positively skewed distribution implying that a majority of employees reported relatively positive perceptions regarding training and development opportunities. When considering the mean for working conditions it shows a 2.6198 value and the standard deviation is 0.633694. This mean is also below the midpoint of 3, indicating that employees are slightly less satisfied with working conditions. In here the Skewness of the 1.485 value suggests a positively skewed distribution, indicating that more employees reported favourable working conditions. Further supervisory support has a mean of 2.7448 and a standard deviation of

0.448074. Like the previous factors, this mean is below 3, indicating relatively moderate satisfaction. A Skewness of 1.374 suggests a positively skewed distribution, indicating that employees generally reported positive perceptions of supervisory support. When it comes to job security, the mean value recorded as 2.0313, and the standard deviation is 0.757279. Again, this mean falls below 3, signaling relatively lower perceived job security. With a Skewness of 0.901, the distribution for job security is positively skewed, implying that more employees might feel secure in their jobs. Finally, compensation has a mean of 2.4531 and a standard deviation of 0.509631, also indicating a mean below the midpoint of 3. The Skewness of the 0.919 value shows a positively skewed distribution, suggesting that more employees might perceive compensation positively. In conclusion, employees in the housekeeping department of hotels in the Dambulla area exhibit a slightly higher intention to leave their jobs. While their perceptions of various HRM practices vary, factors like training and development, working conditions, supervisory support, job security, and compensation appear to play roles in shaping their turnover intentions. Positive Skewness across several variables indicates that employees generally perceive these HRM practices in a positive light, despite the slightly elevated turnover intention.

4.4 Correlation Analysis

Table 5: Correlation Analysis

		Training and development	Working condition	supervisory support	Job security	Compensation
Pearson Correlation		-.853**	-.822**	-.856**	-.775**	-.749**
Turnover intention	Sig. (2-tailed)	.000	.000	.000	.000	.000
N		48	48	48	48	48

Source: Survey Data

According to the correlation analysis, all the p-values are 0.000 (P-Value < Significant Level). These values are less than 0.01, therefore result is highly significant. All the coefficient of correlation is negative. This means that Training and development, working conditions, Supervisory support, Job security and

Compensation have a negative relationship with the Turnover intention of housekeeping employees. It means that those HRM practices are mainly caused by employees' turnover intention.

4.5 Regression Analysis

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.925ª	.855	.838	.26372	1.649

Source: Survey Data

Predictors: (Constant), compensation, training and development, working conditions, job security, supervisory support

Dependent Variable: Turnover intention

According to adjusted R squared 83.8% of employees' turnover intention has been explained by the model. The multiple correlation is 0.925 this means that training and development, working conditions, supervisory support, job security and compensation are strongly correlated jointly with employees' turnover intention. D-W test statistics is 1.649. This is between 1.5 and 2.5, therefore residuals are independent.

Table 7: ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	17.278	5	3.456	49.686	.000ᵇ
1	Residual	2.921	42	.070		
	Total	20.199	47			

Source: Survey Data

Dependent Variable: Turnover intention

Predictors: (Constant), compensation, training and development, working conditions, job security, supervisory support

In Regression ANOVA probability of F-test statistics is 0.000, this is highly significant. This means that the model is jointly significant. Therefore, training and development, working conditions, supervisory support, job security and compensation jointly influence employees' turnover intention. The individual effect of these factors is given by Table 7.

Table 8: Regression Analysis

Model Unstandardized Coefficients	Model Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B Std. Error	B Std. Error	Beta			Tolerance	VIF
(Constant)	7.057	.298		23.651	.00		
Training and development	-.565	.153	-.395	-3.700	.001	.238	4.200
Working condition	-.139	.118	-.134	-1.175	.247	.170	5.875
Supervisory support	-.563	.176	-.385	-3.190	.003	.212	4.722
Job security	-.072	.091	-.083	-.788	.435	.182	5.487
Compensation	-.026	.134	-.020	-.192	.849		

Source: Survey Data

In terms of individual effects, the probability associated with training and development is 0.001, indicating high significance. The individual beta value is -0.565. Consequently, training and development significantly and negatively impact employees' turnover intention. Similarly, the probability and individual beta values for supervisory support are 0.003 and -0.563, respectively. This points to supervisory support also having a significant negative influence on employees' turnover intention. On the other hand, the probabilities related to working conditions, job security, and compensation exceed 5%, rendering them individually insignificant. However, they collectively contribute to employees' turnover intention. These factors do not exert individual influence, but together, they affect employees' turnover intention. Based on the Standardized Coefficients of beta, supervisory support holds the highest value, making it the most influential factor. Following that, training and development come as the second most influential factor, and compensation ranks third. Conversely, according to the analysis, job security holds the least influence on employees' turnover intention among the five independent variables studied. Furthermore, all VIF values are under 10, and TOL values exceed 0.1. This indicates that the independent factors are not perfectly or highly correlated with each other

5. Discussion of the Findings

This study endeavours to analyze the influence of Human Resource Management (HRM) practices on employees' turnover intention by examining

five key variables: training and development, working conditions, supervisory support, job security, and compensation. To guide the investigation, the researcher formulated one central research question and six sub-questions, each aligned with the main objective and six sub-objectives. The primary research inquiry posited was, "To what extent do human resources management practices impact the turnover intention of housekeeping employees in hotels?" This pivotal question laid the foundation for the study's execution. The sub-objectives and corresponding sub-questions were strategically designed to dissect the individual impacts of the chosen independent variables, which were thoughtfully drawn from existing literature, on the turnover intention of housekeeping employees in the hotel industry. The study's subject pool comprised 48 employees working in the housekeeping department of both classified and unclassified hotels, excluding boutique establishments, located in the Dambulla area. Among the sample characteristics examined were gender distribution, age composition, educational background, marital status, and years of service. Notably, the majority of the sample cohort consisted of male employees, consistent with findings documented in previous research studies. Regarding specific job roles within the housekeeping department, the majority of employees were identified as room attendants. This finding aligns closely with outcomes observed in various prior studies. Similarly, the research underscored a significant proportion of non-married employees within the sample, a finding that echoes the observations reported by other researchers.

The study proceeded to formulate five distinct hypotheses, each seeking to explore the influence of various HRM practices on turnover intention. The first hypothesis scrutinized the impact of training and development initiatives and yielded results indicating a statistically significant negative effect on the turnover intention of housekeeping employees in hotels. In other research, Training and development has been identified as one of the most important components of human resource practices that significantly affect turnover decision (Rosser, 2004). Therefore, the results of this study were not matched. (Holloway, 2002). This finding mirrors the conclusions of earlier research that underscore the critical role of training and development programs in shaping employee' turnover decisions. Subsequently, the second hypothesis scrutinized the nexus between working conditions and turnover intention. However, the research findings diverged from this hypothesis, and the observed results led to its rejection. This contradicts certain studies that have established a substantial negative correlation between working conditions and turnover intention Study (Billah, 2009) on banks' employees found that working conditions are a highly significant factor and are negatively related to turnover intention. It is not matched with the findings of this research. but as per(Cho, S. D., Cheong, K. J., & Kim, 2009), indicated that working conditions mostly do not impact to decide

turnover intention. The third hypothesis delved into the impact of supervisory support on turnover intention. Based on Joarder& Sharif's research, job security, compensation and supervisory support working conditions are highly significant and negatively related to the turnover intention of employees. (Mossholder, K. W., Settoon, R. P., & Henagan, 2005) This research also indicated that supervisory support has a significant impact on employee' turnover. The results distinctly indicate a substantial negative influence, aligning with previous research that underscores the pivotal role of supervisory support in modulating employees' turnover intentions. The fourth hypothesis aimed to elucidate the relationship between job security and turnover intention. In this context, the findings suggested that job security did not wield a statistically significant influence on turnover intention. According to(Samuel, M. O., & Chipunza, 2009), job security was not found on significant influencing factor in employee retention in both public and private organizations.(Radzi, S.M., Ramley, S.Z.A., Salehuddin, M., Othman, Z., Jalis, 2009) argued that there is strong evidence of an association between job security and retention, it reduces employee turnover. Further, this observation diverges from certain studies that posit a robust link between job security and retention. Lastly, the fifth hypothesis interrogated the impact of compensation on turnover intention. The study's findings resonated with specific research outcomes that posit a negative correlation between compensation and turnover intention. However, contrasting perspectives are also observed in the literature, suggesting that compensation might not be a statistically significant determinant. In summary, two hypotheses (pertaining to training and development, as well as supervisory support) demonstrated a noteworthy negative impact on turnover intention. Conversely, the three remaining hypotheses (associated with working conditions, job security, and compensation) did not yield significant empirical support within the context of this study. Notably, all these factors exhibited a negative correlation coefficient, implying an inverse relationship with turnover intention among housekeeping employees. Importantly, this study effectively accomplished its sub-objectives, particularly in the exploration of the intricate relationship between HRM practices and turnover intention. This investigation was further substantiated through the calculation of correlation coefficients for each variable, reinforcing the profound impact of HRM practices on turnover intention among housekeeping employees in the Dambulla area.

6. Conclusion and Policy Implications

In conclusion, this study aimed to examine the impact of Human Resource Management (HRM) practices on the turnover intention of housekeeping department employees in classified and unclassified hotels within the Dambulla area. The findings underscored the significant influence of HRM practices, including training and development, working conditions, supervisory support,

job security, and compensation, on turnover intention. The regression analysis revealed that these variables collectively accounted for 85.5% of employees' turnover intention, emphasizing their substantial role. Among these variables, training and development and supervisory support exhibited a noteworthy negative impact, whereas working conditions, job security, and compensation did not attain statistical significance. Thus, this study successfully addressed its research objectives and contributed to the understanding of HRM practices' implications for turnover intention among housekeeping employees.

The recommendations derived from this study hold the potential to significantly enhance the relationship between HRM practices and turnover intention among housekeeping department employees in classified and unclassified hotels within the Dambulla area. Notably, the impact of HRM practices was notably pronounced, with training and development and supervisory support proving to be crucial factors. To optimize these practices, it is suggested that training periods be extended to bolster employee skills, supplemented by workshops that acquaint them with new technologies and concepts. Equally important is the need to reduce night shifts for female employees to promote their work-life balance. Addressing unfavourable working conditions, such as limited break times and prolonged shifts, is imperative to counter the negative influence on turnover intention. Supervisory support emerged as a pivotal factor, necessitating the cultivation of an environment characterized by mutual assistance and support among all employees. Ensuring job security is crucial to mitigating turnover intention, emphasizing the need for hotels to safeguard their employees' employment stability. Additionally, adequate compensation aligned with employee contributions is pivotal in curbing turnover intention. Timely payment of bonuses, increments, and overtime wages should be prioritized to maintain employees' motivation and satisfaction. Looking ahead, it is recommended that future research broadens its scope to encompass a wider range of hotels across Sri Lanka, along with an expanded sample size to ensure robust and generalized findings. Moreover, targeting a more diverse participant pool will enhance the applicability and credibility of the study's outcomes. The insights garnered from this study's recommendations can serve as a roadmap for developing effective HRM strategies that not only counter turnover intention but also foster enhanced employee retention within the dynamic hotel industry.

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