Print ISSN 0258-9710
E - ISSN 2478-1169
Volume 46 No. 2
December 2023

Sri Lanka Journal of Social Sciences

www.nsf.gov.lk

SRI LANKA JOURNAL OF SOCIAL SCIENCES

Publication :The Sri Lanka Journal of Social Sciences is published twice a year, in June and December, by the National Science Foundation of Sri Lanka. The journal publishes articles in Sinhala, Tamil and English languages, covering the entire range of social sciences focusing on Sri Lanka and/or other South Asian countries.

Subscriptions :Foreign: US $ 8.50, Local: Rs. 100.00 per issue (postage free). Remittance in favour of the National Science Foundation.

Manuscripts :Manuscripts should conform to instructions given at the back of this issue. No responsibility is assumed by the National Science Foundation for statements and opinions expressed by the contributors to this journal.

All correspondence relating to the journal should be sent to the Director General, National Science Foundation, 47/5, Maitland Place, Colombo 07, Sri Lanka.

Fax: 94-11-2694754
E-mail: sljss@nsf.gov.lk
Homepage:http://www.nsf.gov.lk/index.php/journal-of-social-sciences

SRI LANKA JOURNAL
OF
SOCIAL SCIENCES

Volume 46 Number 2 December 2023

CONTENTS

Guide to preparation of manuscript

Cover: Photo used on the cover of *Sri Lanka Journal of Social Sciences* Volume 46 Issue 02 is a contribution made by the authors Ashrafi, DM *et al*. (see *Sri Lanka Journal of Social Sciences* 2023 46(2): 197-211).

Sri Lanka Journal of Social Sciences 2023 46 (2): 141-143
DOI: https://doi.org/10.4038/sljss.v46i02.9112

EDITORIAL

Knowledge co-creation in the digital age: Social Science research as a catalyst

The rapid transformation into the digital age has radically altered and redefined the ways in which we access, create, share, and use knowledge. Paradigm shifts that have resulted from the impacts of industrialization, modern sciences, technological advancements, and globalization, have significantly affected our educational processes (UNESCO, 2023). Digital transformation has accelerated knowledge sharing and helped advancing towards achieving the Sustainable Development Goals (SDGs), especially SDG4, which aims at ensuring inclusive and equitable quality education (United Nations, 2015). Further, digital competence allows quick access to, and responsible use of information for learning, work, and effective participation in society. Nevertheless, the success of individuals in a society depends not only on the accumulation of knowledge but also on their ability to harness the information effectively, creatively, and collaboratively.

While the digital age offers immense promise for educational advancement, it also presents a variety of challenges such as rising inequalities, digital divides, and concerns about data privacy and security. However, these same challenges also provide opportunities for collective action towards finding innovative solutions to them. The Global Report from the International Commission on the Futures of Education which focus on "rethinking the role of education, learning, and knowledge in light of the tremendous challenges and opportunities of predicted, possible, and preferred futures", states that, "forging a new social contract for education is a critical step towards reimagining our futures together" (UNESCO, 2021: p. 5). As emphasised in this report, the starting point of this process is to have a shared vision of the public purposes of education and work together to create futures that are shared and interdependent. This also implies the importance of co-creating knowledge through collaborative and co-operative thinking and practices with shared understanding towards achieving common goals.

The concept of co-creation of knowledge is an inclusive process of generating, sharing, and applying knowledge among diverse stakeholders. Research, particularly social science research, with its multidisciplinary nature, catalyzes this process by providing multiple perspectives that inform collaborative and creative efforts to address contemporary societal challenges. This editorial focuses on the significant role social science research plays in knowledge co-creation in the current digital era.

Knowledge co-creation involves collaborative inquiry and dialogue, where individuals engage in active exchanges of ideas to explore complex topics, solve problems, and generate new knowledge. Cultivating Communities of Practice (CoPs) is recognised as a powerful mechanism for fostering such knowledge sharing and collaboration within various professional domains (Wenger, 2000). CoPs are groups of individuals who share a concern or passion for a subject and interact with one another on an ongoing basis to expand their knowledge and develop their expertise (Wenger, 1998). Since CoPs bring together individuals with shared interests or expertise to engage in joint activities, exchange ideas, and collectively solve problems, they provide the social context and a facilitative environment for effective knowledge co-creation.

Social science research facilitates networking among individuals with shared interests, thus creating opportunities for knowledge sharing within communities. While all collaborative networks may not be essentially CoPs, developing social networks within an ecosystem can lead to CoPs, augmented with digital technologies as well. CoPs support cultivating a learning culture that promotes not only shared knowledge, but also interdependence, empowerment, and readiness for change. Social science research facilitates various stakeholders such as researchers, practitioners, policymakers, and communities from multiple disciplines, to engage in co-creation of knowledge through critical dialogue and collaborative research initiatives. This issue of *Sri Lanka Journal of Social Sciences* (SLJSS) presents several articles focusing on various aspects of knowledge co-creation and innovative practices within the changing societal paradigms.

For instance, in their article *Strengthening technology and knowledge transfer from Sri Lankan universities by the establishment of University Business Linkage Cells,* Abeytunga *et al*. describe a novel venture implemented in the Sri Lankan universities to stimulate innovation through facilitating collaborative interaction among the government, universities, and industries. Establishing Technology Transfer Offices as University Business Linkage Cells was found to be an effective initiative to enhance innovation capacity among academia, which indicates the significance of professional networking and provocative leadership in promoting innovation. This initiative demonstrates how fostering partnerships between academia, industry, and government can lead to creating ecosystems that facilitate the exchange of ideas and the translation of knowledge into tangible outcomes. It is a good example of social science research catalyzing knowledge co-creation by bringing together perspectives and practices of diverse stakeholders, which could eventually lead to development of CoPs.

Leadership plays a crucial role in the success of any collaborative team. For instance, leadership styles of institutional leaders or managers can influence the performance of an institution either positively or negatively. Exploring the impact of effective leadership styles on school performance of Central Colleges in Sri Lanka, Fernando *et al*. identify that bringing out the best, being inclusive, having concern for others, resourcefulness, being innovative, and being able to stimulate the environment for performance, as effective leadership characteristics which lead to higher school performance levels. Transformational leadership is evidently a powerful way to bring about positive changes in institutions via promoting collaborative and co-operative practices. Sharing evidence-based insights generated through such research can facilitate informed decision-making and addressing social issues via collaborative efforts.

On the other hand, metacognition, or being aware of one's own cognitive processes also enhances creation and sharing of knowledge. The study by Razzaq & Hamzah on *Unraveling the impact of metacognitive planning on writing performance through willingness to write in Pakistani ESL learners: A mixed-methods study* reveals practical implications for universities to enhance students' writing performance by implementing planning as a metacognitive strategy, thus improving their willingness to write. Such investigations enable identifying underlying causes and patterns to initiate co-creation of intervention efforts to address the prevailing issues.

Nevertheless, behavior trends of individuals in a society may be affected by various factors, including unprecedented circumstances. The article *Rigidity or fluidity? Does variety-seeking vary based on perceived threat during the COVID-19 pandemic?* by Ashrafi *et al*. examines the interplay between the perceived threats of the pandemic and variety-seeking among consumers. It reveals an increase in individuals' tendency for variety-seeking in consumable items as their perceived threats intensify, providing insights into the complex interrelationship between the perceived threat levels and consumer behavior trends. Variety-seeking reflects a fundamental human tendency to seek novelty, exploration, and diversity. Understanding such dynamic social behavior through research will facilitate devising strategies to support the development of collective knowledge among the relevant stakeholders.

Implementing collaborative projects is another useful strategy to foster knowledge co-creation. Yet, the success of a project will essentially depend on effective project governance. In their article *Optimizing organizational value: crafting a constructively aligned thematic* *framework for project governance enhancement*, Gamlath *et al*. presents a thematic conceptual framework for project-centric entities, derived from an extensive literature analysis. It offers a structured blueprint aligned with project objectives, fostering the twin goals of optimizing value for invested resources and nurturing project sustainability. Project governance frameworks facilitate structured collaborative activities among the project participants, which is a useful research output that will inspire project managers to adopt such strategies.

The diversity of the articles presented in this issue of SLJSS is indicative of the multidisciplinary and interdisciplinary nature of social science research, and how it serves the knowledge co-creation process. Through the integration of multiple perspectives from diverse disciplines, it supports not only the creation and sharing of knowledge, but also highlighting societal trends, developing creative solutions for emerging issues, facilitating collaboration and networking, promoting inclusivity and diversity, unraveling insights that inform policymaking, and driving meaningful change. As we progress through the shifting paradigms of the knowledge-driven world, facing increasingly complex societal challenges, social science research serves as an effective catalyst for engaging diverse stakeholders in the co-creation of knowledge.

REFERENCES

UNESCO (2021) *Reimagining our futures together: a new social contract for education* [Online] Available from: https://unesdoc.unesco.org/ark:/48223/pf0000379707 [Accessed: 31st May 2024].

UNESCO (2023) *Global education monitoring report, 2023: technology in education: a tool on whose terms?* [Online] Available from: https://unesdoc.unesco.org/ark:/48223/pf0000385723 [Accessed: 31st May 2024].

United Nations (2015) Transforming our world: the 2030 Agenda for Sustainable Development [Online] Available from: https://sdgs.un.org/2030agenda [Accessed: 31st May 2024].

Wenger, E. (1998) *Communities of practice: Learning, meaning, and identity*, Cambridge University Press.

Wenger, E. (2000). Communities of Practice and Social Learning Systems, *Organisation*, 7(2), pp: 225-246.

DOI: https://doi.org/10.1177/135050840072002

Shironica P. Karunanayaka

Sri Lanka Journal of Social Sciences 2023 46 (2): 145-158
DOI: https://doi.org/10.4038/sljss.v46i02.8771

REVIEW ARTICLE

Optimizing organisational value: crafting a constructively aligned thematic framework for project governance enhancement

G. R. M. Gamlath[1*], Yogarajah Nanthagopan[2], Nigel L. Williams[3] and Lingesiya Kengatharan[4]

[1]*Department of Finance and Accountancy, Faculty of Business Studies, University of Vavuniya, Sri Lanka.*
[2]*Faculty of Business Studies, University of Vavuniya, Sri Lanka.*
[3]*School of Organizations, Systems and People, University of Portsmouth, United Kingdom.*
[4]*University of Jaffna, Sri Lanka.*

Abstract: This paper aims to create a harmoniously blended thematic conceptual framework that incorporates project governance principles, built upon insights obtained from previous academic studies. This framework is positioned to offer significant benefits to the organisation by improving operational efficiency and aligning with strategic objectives. The authors adopted a qualitative research approach to analyse the key literature on the paper's theme. They carefully reviewed the theoretical underpinnings and categorised the contents to construct a step-by-step thematic conceptual framework aligned with the research's objectives. The study identifies four key elements in the suggested framework for project governance. These include maintaining the unity of functional diversity among key processes, creating value and practicing originality, maintaining a sequential governance application path through onion-shaped structure, and ensuring the availability of required project governance framework quality. The framework ensures projects achieve objectives, deliver value for money, and contribute to sustainable development through oversight, control, integration, benefits realization, stakeholder engagement, project culture, and leadership. Effective project governance requires clear goal delineation, well-structured plans, robust risk management protocols, and collaboration among stakeholders. Regular monitoring and assessment of project performance is crucial for achieving project objectives and contributing to sustainable development goals. Governance differs from management in its focus on strategic decision-making, driving investments in capabilities, and ensuring optimal resource allocation. In public sector development projects, incorporating effective project governance practices is crucial for delivering optimal value for invested resources, achieving predefined objectives, and achieving desired outcomes cost-efficiently and impact fully. This separation underscores the importance of governance in imbuing projects with sustainable value and fostering prudent decisions. The paper presents a thematic conceptual framework for project-centric entities, derived from extensive literature analysis. This framework offers a structured blueprint aligned with project objectives, fostering the twin goals of optimizing value for invested resources and nurturing project sustainability. By embracing this framework, organisations can enhance their capacity to deliver outcomes that meet benchmarks and maximise resource utilization, enhancing the overall value proposition of initiatives. The convergence of project implementers and governance entities is crucial for driving exceptional quality outputs and adhering to robust governance principles, ensuring project success and sustained effectiveness.

Keywords: Project governance, thematic conceptual framework, governance perspective, project-driven organisation, project sustainability.

INTRODUCTION

Project governance refers to the structures, processes, and policies put in place to ensure effective management, oversight, and accountability for projects. It provides a framework for decision-making, risk management, and project performance evaluation. In recent years, there has been an increasing focus on project governance as organisations seek to improve project outcomes and reduce risks. In the modern world, the acceleration

* Corresponding author (methikalak@gmail.com; https://orcid.org/0000-0001-6937-4551)

of development through strategic perspective in the countries has been a major vacuum to accomplish the work in different sectors or industries (Kodithuwakku, 2022; Anderson, 2012). In parallel, the economies are trying to shorten the time gap to speed up their development work through projects to deliver broader packages to the society satisfying the aspirations of all stakeholders involved.

Scholars have developed various theoretical frameworks to elucidate project governance, with one notably influential framework being the "three-dimensional model" crafted by Müller & Jugdev (2012). This model delineates project governance across three dimensions: strategic, tactical, and operational. The strategic dimension prioritises aligning projects with goals, while the tactical dimension involves planning, execution, and control. The operational dimension centers on project delivery and stakeholder management. Moreover, it's recognised that these dimensions seldom operate in isolation within an organisation, as a project-driven strategy progressively integrates into the economy (Dissanayake & Devapriya, 2022; Joslin & Muller, 2016). Within this context, optimizing limited resources within such a strategic framework becomes pivotal for effective and efficient project performance improvement. Management literature has underscored the significance of a well-structured, pre-determined framework—referred to project governance—to streamline project management processes (Hjelmbrekke *et al*., 2014). Consequently, scholars have concentrated efforts on conceptualising the necessity of project governance through diverse frameworks (Too & Weaver, 2014). Additionally, it's emphasised that project governance frameworks must generate value (Ismail *et al*., 2021), exhibit flexibility, and provide robust responses to the inherent turbulence in project implementation or organisational dynamics (Sanderson, 2012). Remarkably, projects lacking senior management involvement and oversight by varied stakeholders fail to deliver effective outcomes for organisations and society (Brunet, 2019). Establishing organisational arrangements—such as rules, regulations, mechanisms, procedures, and systems—is crucial to delineate boundaries between senior management and project teams. This facilitates value addition, ensures alignment with strategic objectives, decentralises, decision-making, maps and allocates resources as per situational demands, and enables timely monitoring, evaluation, and control by stakeholders (Kodithuwakku, 2022; Gunawardane *et al*., 2021; Sri Lanka, Department of Project Management and Monitoring, 2017). Consequently, the organisational challenge lies in harmonising project internal management with the governance framework. This alignment ensures that the internal management of projects actively supports and aligns with the strategic objectives of the organisation (Athukorala *et al*., 2017; Nanthagopan *et al*., 2016).

The theoretical underpinning of project governance, as elucidated in the "governance structure model" by Bredillet *et al.* (2018), underscores the pivotal significance of the governance framework within the realm of project management. This model serves as a beacon, illuminating the criticality of establishing a well-defined governance structure that meticulously outlines roles and responsibilities. Central to this framework is the acknowledgment of the profound impact that a transparent and coherent governance structure exerts on the efficacy and success of project endeavors, emphasising the imperative need for clarity and precision in delineating individual roles and their corresponding responsibilities. Another influential framework is the "governance maturity model" developed by Crawford & Pollack (2004). This model proposes that project governance evolves over time; organisations can move from a low level of governance maturity to a high level of maturity through a series of stages. The stages include ad hoc, formalised, structured, managed, and optimised. In recent years, scholars have developed more complex and nuanced frameworks that take into account the growing complexity of projects. For example, Müller & Jugdev (2012) developed the "three-dimensional model" of project governance, which emphasises the strategic, tactical, and operational dimensions of project governance. In addition, other scholars have developed frameworks that emphasise different aspects of project governance. For example, Winter & Smith (2006) developed a framework that emphasises the role of project governance in managing complexity and uncertainty. They argue that effective project governance requires a flexible approach that can adapt to changing circumstances. Moreover, scholars have started to focus on the importance of stakeholder management in project governance. For example, Langley *et al*. (2018) developed the "stakeholder governance framework", which emphasises the importance of identifying and managing stakeholders' needs and expectations. Therefore, the theoretical frameworks on project governance provide a useful way to understand the complex structures, processes, and policies that underpin effective project management. These frameworks highlight the importance of aligning projects with organisational goals, managing risks, and adapting to changing circumstances. By using these frameworks, organisations can improve project outcomes and minimise unnecessary risks.

This paper critically investigates the imperative of establishing a conceptual framework harmoniously intertwined with project governance, drawing upon a comprehensive analysis of prior literature. Central to this inquiry is the exploration of how such a project governance framework can catalyse and amplify organisational value. To unearth retrospective insights, this research addresses two pivotal inquiries: the extent of alignment evident in diverse models developed by scholars concerning project governance and the delineation of significant functions and responsibilities intrinsic to a constructively aligned project governance framework. The paper commences by delving into recent literature, conducting a comprehensive review of various models pertinent to project governance. This preliminary step aims to distill empirical evidence elucidating the nature of these frameworks and their potential integration for constructive alignment within the ambit of project governance. Through a meticulous examination of empirical findings, critical reviews, and foundational constructs, the subsequent phase involves the formulation of a conceptual framework on project governance. This proposed framework amalgamates key elements derived from disparate, yet complementary frameworks established in prior research. It aims to present a constructively aligned project governance blueprint, poised to optimise project operations while concurrently contributing to the holistic development of the country. By weaving together these diverse elements, this framework envisages facilitating the efficient execution of projects, thereby contributing tangibly to the nation's developmental objectives through a nuanced and balanced governance strategy. Concluding the discourse, this paper not only recommends pragmatic avenues for the application of the proposed framework but also underscores the potential trajectories for future research endeavors. By delineating actionable suggestions for practical implementation, it sets the stage for the realisation of the framework's potential and underscores its adaptability in diverse project landscapes while fostering an open avenue for further scholarly exploration.

LITERATURE REVIEW

Concept of project governance

Theoretical and empirical evidence on project governance has grown significantly over the past two decades. Scholars have developed various theoretical frameworks and models to explain the nature and dynamics of project governance, while empirical studies have explored the effectiveness of different governance mechanisms and practices. Complementing the aforementioned theoretical framework regarding project governance is the governance structure model formulated by Bredillet & Tywoniak (2000). This model delineates the preparation, implementation, and monitoring phases of project governance, positing that it operates on a dual principle standardisation and customisation. This nuanced approach enables project governors to meticulously fashion and execute role-specific, goal-driven strategies, thereby fostering effective means to accomplish project objectives. Consequently, the models on project governance underscore the paramount significance of delineating clear roles and responsibilities, establishing streamlined decision-making protocols, and fostering robust communication channels within project governance. Emphasising these aspects becomes crucial in steering projects towards successful fruition. Another influential framework is the governance maturity model developed by Crawford & Pollack (2004), which proposes that project governance evolves over time and organisations can move from a low level of governance maturity to a high level of maturity through a series of stages. More recent frameworks have emphasised the importance of stakeholder management, such as the stakeholder governance framework developed by Langley *et al.* (2018). This framework emphasises the importance of identifying and managing stakeholders' needs and expectations to ensure project success.

Empirical studies have proved that effective project governance is associated with better project outcomes, such as higher project success rates, improved stakeholder satisfaction, and reduced project risks. For example, a study by Javed & Malik (2016) found that project governance practices such as risk management, stakeholder engagement, and performance monitoring were positively associated with project success. Similarly, a study by Belout & Gauvreau (2004) found that effective project governance mechanisms, such as project charters, project management plans, and performance measurement systems, were associated with better project outcomes. Overall, the theoretical and empirical evidence suggests that effective project governance is critical for project success. Clear roles and responsibilities, effective communication, stakeholder management, and risk management are some of the key elements of effective project governance.

Governance in an integrated context

In recent years, scholars have increasingly emphasised the need for an integrated approach to project governance which considers the complex and interrelated nature of project management. An integrated approach to project governance considers the strategic, tactical, and operational aspects of project management, as well as the interactions between project governance and other organisational systems. One theoretical framework that emphasises an integrated approach to project governance is the "three-dimensional model" developed by Müller & Jugdev (2012). This model highlights the strategic, tactical, and operational dimensions of project governance and emphasises the need for alignment between these dimensions. The model also highlights the importance of stakeholder management and the role of organisational culture in shaping project governance. Another theoretical framework that emphasises an integrated approach to project governance is the "integrated project governance model" developed by Pemsel & Wiewiora (2013). This model emphasises the importance of integrating project governance with other organisational systems, such as strategy, performance management, and risk management. The model also emphasises the need for clear roles and responsibilities, effective communication, and stakeholder management. Empirical studies have shown that an integrated approach to project governance is associated with better project outcomes. For example, a study by Zwikael & Smyrk (2015) found that an integrated approach to project governance was positively associated with project success. The study also found that effective stakeholder management was a key driver of project success in an integrated governance context. Similarly, a study by Van der Waldt & Du Plessis (2016) found that an integrated approach to project governance, which included elements such as strategic alignment, performance measurement, and stakeholder management, was associated with better project outcomes.

Overall, the theoretical and empirical evidence suggests that an integrated approach to project governance is critical for project success. Clear roles and responsibilities, effective communication, stakeholder management, and integration with other organisational systems are some of the key elements of effective project governance in an integrated context.

The relationship between project governance and financial management

The relationship between project governance and financial management has been a topic of interest among scholars and practitioners in project management. Effective financial management is critical for project success, and project governance plays an important role in ensuring that financial resources are allocated and managed effectively. Theoretical frameworks have been developed to explain the relationship between project governance and financial management. One such framework is the "governance-performance framework" developed by Gareis & Huemann (2006), which emphasises the importance of project governance in ensuring effective financial management and ultimately project success. The framework proposes that project governance structures, processes, and practices should be aligned with project goals and objectives and should support effective financial management. Another theoretical framework that emphasises the relationship between project governance and financial management is the "resource-based view of the firm" developed by Wernerfelt (1984). This framework proposes that effective financial management is a key resource for project success and that project governance plays an important role in allocating and managing financial resources effectively. Empirical studies have also explored the relationship between project governance and financial management. For example, a study by Pemsel & Müller (2012) found that effective project governance, including financial management practices such as budgeting and cost control, is positively associated with project success. Similarly, a study by Johansen & Gronhaug (2015) found that effective financial management, which includes project governance practices such as monitoring and controlling costs, is positively associated with project success.

Overall, the theoretical and empirical evidence suggests that project governance and financial management are closely related, and effective financial management is critical for project success. Project governance plays an important role in ensuring that financial resources are allocated and managed effectively and that financial management practices are aligned with project goals and objectives.

METHODOLOGY

This study adopts a purely qualitative approach, leveraging secondary literature and scholarly journal articles for data analysis. A comprehensive review was undertaken specifically focusing on previous studies concerning the project governance framework with its thematic background, its key features and their governance processes with the selected key exposures in Sri Lanka and abroad. The synthesis of information followed an interpretive method, contextualising the research's theme and underlining its significance (Ihuah *et al*., 2014). Data analysis involved a thematic evaluation aimed at identifying and elucidating implicit or explicit patterns within the content of the studies (Ismail *et al*., 2019; Vaismoradi *et al*., 2013). The search for publications encompassed renowned scholarly databases such as Emerald, Elsevier, Science Direct and Springer. Papers relevant to the nexus of project governance and performance in public sector development projects were meticulously chosen for detailed scrutiny. To focus on the gaps pertinent to the Sri Lankan context, a meticulous filtering process was executed based on thematic areas, drawing from abstracts, literature contexts, and keywords like "Project Governance", "Project Governance Framework", "Project Performance" and "Public Sector

Development Projects". The articles selected were subjected to hard assessment. As mentioned earlier, the literature review process employed a structured three-phase strategy. Initially, articles were retrieved from databases, followed by a meticulous filtering process to eliminate irrelevant content and ensure alignment with the research aims. Subsequently, selected articles underwent further scrutiny and analysis to harmonise with the study's objectives. Ultimately, the insights gleaned from the literature were synthesized to bridge and address the empirical gaps this study was specifically designed to resolve.

THEMATIC CONCEPTUAL FRAMEWORK

Developing a conceptual framework on project governance requires a thorough understanding of the relevant theoretical and empirical literature. Within the multifaceted and retrospective perspectives offered by the aforementioned frameworks crafted by scholars such as Bredillet *et al.* (2018), Langley *et al.* (2018), Mullar & Jugdev (2012), Winter & Smith (2006), Crawford & Pollack (2004), and the foundational work of Bredillet & Tywoniak (2000), a synthesis emerges. This synthesis paves the way for delineating key steps essential to constructing a thematic conceptual framework for project governance within this study:

Step 1: Review the literature on project governance The first step in developing a conceptual framework on project governance is to review the relevant literature. This includes both theoretical and empirical studies that address various aspects of project governance, such as governance structures, processes, practices, and outcomes. Scholars like Müller & Jugdev (2012), Pemsel & Wiewiora (2013), and Gareis & Huemann (2006) have developed theoretical frameworks that can inform the development of a conceptual framework for project governance. Empirical studies such as those by Zwikael & Smyrk (2015) and Van der Waldt & Du Plessis (2016) can provide insights into the factors that contribute to effective project governance.

Step 2: Identify the key components of project governance Based on the literature review, identify the key components of project governance that will be included in the conceptual framework. These may include governance structures, processes, practices, and outcomes, as well as factors that influence project governance, such as organisational culture and stakeholder management (Jayasundara *et al.,* 2013).

Step 3: Determine the relationships between the key components Once the key components of project governance has been identified, determine the relationships between them. For example, how do governance structures influence governance processes and practices? How do governance outcomes relate to project success? (Samaratunge & Pillay, 2011)

Step 4: Identify the contextual factors that influence project governance Project governance is influenced by a range of contextual factors, such as the characteristics of the project, the organisational context, and the external environment. Identify these contextual factors and consider how they may impact project governance and its outcomes (Kumara *et al.,* 2016).

Step 5: Refine and test the conceptual framework Refine the conceptual framework based on feedback from experts in the field and empirical testing. Empirical testing can involve qualitative or quantitative research methods, such as case studies or surveys, to validate the relationships between the key components of project governance and the contextual factors that influence it (Weerasekara *et al.,* 2021).

In conclusion, developing a conceptual framework for project governance requires a thorough understanding of the relevant literature and a systematic approach to identifying the key components, relationships, and contextual factors. The framework should be refined and tested through empirical research to ensure its validity and usefulness in practice.

Review the literature on project governance

The literature on project governance has gained significant attention since the turn of the millennium. Scholars have proposed various conceptual frameworks for project governance, and these frameworks have been refined and developed over time. This review will summarise some of the main ideas and debates in the literature on project governance.

In the early 2000s, scholars focused on defining project governance and outlining the key components of effective project governance. According to Müller & Turner (2007), project governance is the set of processes and structures that ensure effective and efficient decision-making, communication, and control in projects. They identified three key elements of project governance: oversight, control, and integration. Subsequent research has expanded on these elements and proposed additional components of project governance. For example, Crawford *et al.* (2008) argued that project governance must also include a focus on project benefits and stakeholder engagement. Other scholars have emphasised the importance of project culture and leadership in effective project governance (Hartman & Ashrafi, 2002; Bredillet, 2008). In recent years, scholars have also turned their attention to the role of governance in agile project management. As agile approaches have become more popular in project management, there has been a growing recognition that traditional governance structures may not be effective in agile environments (Müller & Whitty, 2020). Some scholars have proposed new frameworks for agile project governance, such as the Agile Governance Framework (AGF) proposed by Joslin & Müller (2015). One of the ongoing debates in the literature on project governance is the appropriate level of governance for different types of projects. Some scholars argue that there should be a standardised approach to project governance across all projects within an organisation (Thiry, 2010), while others propose that governance should be tailored to the specific needs of each project (Bredillet, 2008). Another area of debate is the relationship between project governance and project success. Some scholars argue that effective project governance is a key determinant of project success (Hartman & Ashrafi, 2002), others suggest that the relationship between project governance and project success is more complex (Müller & Turner, 2010). Overall, the literature on project governance has evolved significantly since 2000, with scholars proposing various conceptual frameworks and refining their understanding of the key components of effective project governance. Ongoing debates in the literature include the appropriate level of governance for different types of projects and the relationship between project governance and project success.

Identify and determine the key components of project governance

Scholars have proposed various key components of project governance over the years. Some of the most related and cited components are as follows:

1. Oversight: According to Müller & Turner (2007), project governance involves overseeing the project to ensure it meets its objectives. Oversight includes monitoring project performance, identifying risks and issues, and making decisions to address them.

2. Control: Project governance also involves controlling the project's resources, scope, schedule, and budget. This requires establishing controls and procedures to ensure that project activities are completed efficiently and effectively (Gunawardana *et al*, 2021).

3. Integration: Effective project governance requires integrating project activities across all levels and functions of the organisation. This involves aligning project objectives with business goals, managing stakeholder expectations, and coordinating the efforts of the project team members (Kodithuwakku, 2022).

4. Benefits realization: Crawford *et al*. (2008) argue that project governance should also focus on realising project benefits. This involves defining the expected benefits of the project, measuring progress towards those benefits, and ensuring that the benefits are actually realised.

5. Stakeholder engagement: Effective project governance requires engaging stakeholders throughout the project lifecycle. This involves identifying and managing stakeholder expectations, communicating with stakeholders regularly, and involving stakeholders in decision-making processes (Ismail *et al.,* 2021a; b).

6. Project culture: Scholars such as Hartman & Ashrafi (2002) have argued that project culture plays a critical role in project governance. A positive project culture is characterised by shared values, beliefs, and behaviors that support effective project management.

7. Leadership: Bredillet (2008) emphasises the importance of leadership in effective project governance. Leaders must establish clear project goals, communicate effectively with stakeholders, and provide guidance and direction to project team members.

These components are not exhaustive, and there may be other important elements of project governance depending on the context and nature of the project. However, these components provide a useful starting point for understanding the key factors that contribute to effective project governance. In particular, the key components of project governance are interrelated and work together to ensure effective and efficient project management. Here are some of the relationships (as integrated) between the key components as proposed by scholars as follows;

1. Oversight and Control: Oversight and control are closely related, as effective oversight requires establishing controls to ensure that project activities are completed as planned. Müller & Turner (2007) argue that oversight should involve monitoring project performance and making decisions to address risks and issues, while control involves managing project resources, scope, schedule, and budget.

2. Integration and Benefits Realization: Integration is essential for realising project benefits, as benefits can only be realised if all project activities are coordinated and aligned with business goals. Crawford *et al*. (2008) suggest that effective project governance requires integrating project activities across all levels and functions of the organisation, and defining and measuring progress towards project benefits.

3. Stakeholder Engagement and Project Culture: As Ismail *et al.* (2021a; b) emphasised, stakeholder engagement requires a positive project culture that supports open communication, collaboration, and mutual respect among all project stakeholders. Hartman & Ashrafi (2002) suggest that a positive project culture is characterised by shared values, beliefs, and behaviors that support effective project management.

4. Leadership and Integration: Effective project governance requires strong leadership to establish clear project goals, communicate effectively with stakeholders, and provide guidance and direction to project team members. Bredillet (2008) emphasises the importance of leadership in ensuring effective project integration and coordination across all levels and functions of the organisation.

5. Stakeholder Engagement and Benefits Realization: Engaging stakeholders throughout the project lifecycle is critical for ensuring that project benefits are realised. Effective stakeholder engagement involves identifying and managing stakeholder expectations, communicating with stakeholders regularly, and involving stakeholders in decision-making processes. Crawford *et al.* (2008) suggest that project governance should focus on realising project benefits by defining the expected benefits of the project, measuring progress towards those benefits, and ensuring that the benefits are realised.

These relationships are not exhaustive, and there may be other important connections between the key components of project governance depending on the specific context of the project. However, understanding these relationships can help project managers develop effective governance frameworks that consider all relevant factors and promote project success.

Identify the contextual factors that influence project governance

Project governance is influenced by a wide range of contextual factors, including the industry or sector in which the project is being carried out, the size and complexity of the project, the organisational culture and structure, the regulatory environment, and the external economic and political environment. Here are some recent views from scholars on the contextual factors that influence project governance:

1. Industry or sector: The industry or sector in which a project is carried out can have a significant impact on project governance. For example, projects in highly regulated industries such as healthcare or finance may require more stringent governance processes to ensure compliance with legal and regulatory requirements. Conversely, projects in more creative industries such as advertising or software development may require more flexible and adaptive governance processes to foster innovation and creativity. According to Lim & Mohamed (2015), the industry or sector in which a project is carried out can significantly influence project governance, with different industries having different governance requirements based on their specific characteristics and regulatory environments.

2. Size and complexity: The size and complexity of a project can also influence project governance. Larger and more complex projects may require more formal governance structures and processes to manage the project effectively. This can include establishing clear roles and responsibilities, developing detailed project plans, and implementing rigorous monitoring and control mechanisms. According to Turner & Müller (2020), the size and complexity of a project can influence project governance by affecting the types of governance structures and processes that are necessary to ensure project success.

3. Organisational culture and structure: According to Joslin & Müller (2015), organisational culture and structure can significantly influence project governance, with organisations having different governance approaches depending on their values, beliefs, and management styles. The culture and structure of an organisation can also influence project governance. Organisations with a hierarchical culture and structure may be more likely to have formal governance processes in place, while organisations with a more collaborative culture and structure may rely more on informal governance mechanisms such as trust and communication.

4. Regulatory environment: The regulatory environment can have a significant impact on

project governance, particularly in industries that are heavily regulated. According to Pinto & Slevin (2019), the regulatory environment can significantly impact project governance by imposing legal and regulatory requirements that must be met to ensure project compliance and success. For example, projects in the construction industry may be subject to building codes and safety regulations, which require strict governance processes to ensure compliance.

5. Economic and political environment: According to Shenhar & Dvir (2018), the external economic and political environment can influence project governance by affecting the availability of resources, the level of competition, and the regulatory requirements that projects must meet. The external economic and political environment can also influence project governance. Economic factors such as market volatility and changing customer demands can affect project timelines, budgets, and resource availability. Political factors such as changes in government policies or regulations can also impact project governance by introducing new requirements or constraints.

Therefore, the contextual factors that influence project governance are complex and multifaceted. Effective project governance requires an understanding of these contextual factors and the ability to adapt governance processes to suit the specific needs of each project.

Refine and test the thematic conceptual framework

Based on prior reserch, the many of theoretical and empirical findings, the project in the sense is defined as a temporary organisation (Turner & Muller, 2020). Ismail *et al.* (2021a; b) emphasised that the role of project and project management is in constructing and modifying organizational context. That shapes a clear, specific, and orderly attempt to operate and accomplish a set of predetermined goals that need to be fulfilling the development aspirations of a country. As Crawford *et al*. (2006), the any kind of projects are to do the right projects and to do those right aligning capabilities with strategy. For the project implementation, a timely, sufficient, quality resource allocation is to be performed by the project (Engwall & Jerbrant, 2003). Also, the project implementation needs a well-capable project staff having talent, ethical and clever manners (Huemann & Keegan, 2007). Also, the project implementation strategy is to be implemented concentrating on the changing paradigms of project management (Pollack, 2007). In a specific point of view, it was noted that most countries first design the projects to accelerate their development process and these accelerations link to the programming at the long end (Maylor *et al*., 2006). Based on the above empirical findings, the project governance as a concept is an ideal as well as the framework should be prepared with constructively aligning to project governance activities (Soderlund & Borg, 2011), and combining value and project management into an effective program management (Thiry, 2010) in a successive manner (Muller & Jugdev, 2012).

Müller (2009) suggests that a good conceptual framework for project governance should incorporate the views of all stakeholders, be flexible enough to adapt to changing circumstances, and provide a basis for measuring project success. Further, Aubry (2007) - emphasises the need for a conceptual framework that takes into account the different dimensions of project governance, including organisational structure, decision-making processes, and project management practices. Hobbs & Aubry (2008) argue that a good conceptual framework for project governance should be grounded in empirical research, be tested through case studies and surveys, and be validated through statistical analysis. In addition, Bredillet (2008) proposes a conceptual framework for project governance that emphasises the importance of political and social dynamics in shaping project outcomes. As Williams (2005) argued that a good conceptual framework for project governance should provide a clear and comprehensive model of project management that is grounded in theory and validated through practice. Moreover, a good conceptual framework for project governance should incorporate the principles of risk management, stakeholder management, and governance theory (Yong & Muller, 2010). These scholars provide a range of perspectives on how to refine and test a conceptual framework on project governance, highlighting the importance of empirical research, stakeholder engagement, and a comprehensive understanding of the various dimensions of project governance.

More recently, some scholars emphasised the importance and implications of good project governance framework. Bryde & Williams (2018) proposed a conceptual framework for project governance that emphasises the importance of stakeholder engagement, effective communication, and organisational learning. Also, Parellel *et al*. (2018) proposed a conceptual framework for project governance that includes the role of governance structures, leadership, and project management practices in ensuring project success. Furthermore, Hine & Arditi (2020) suggest that a good conceptual framework for project governance should incorporate the principles of adaptive governance, which involves continuous learning, collaboration, and

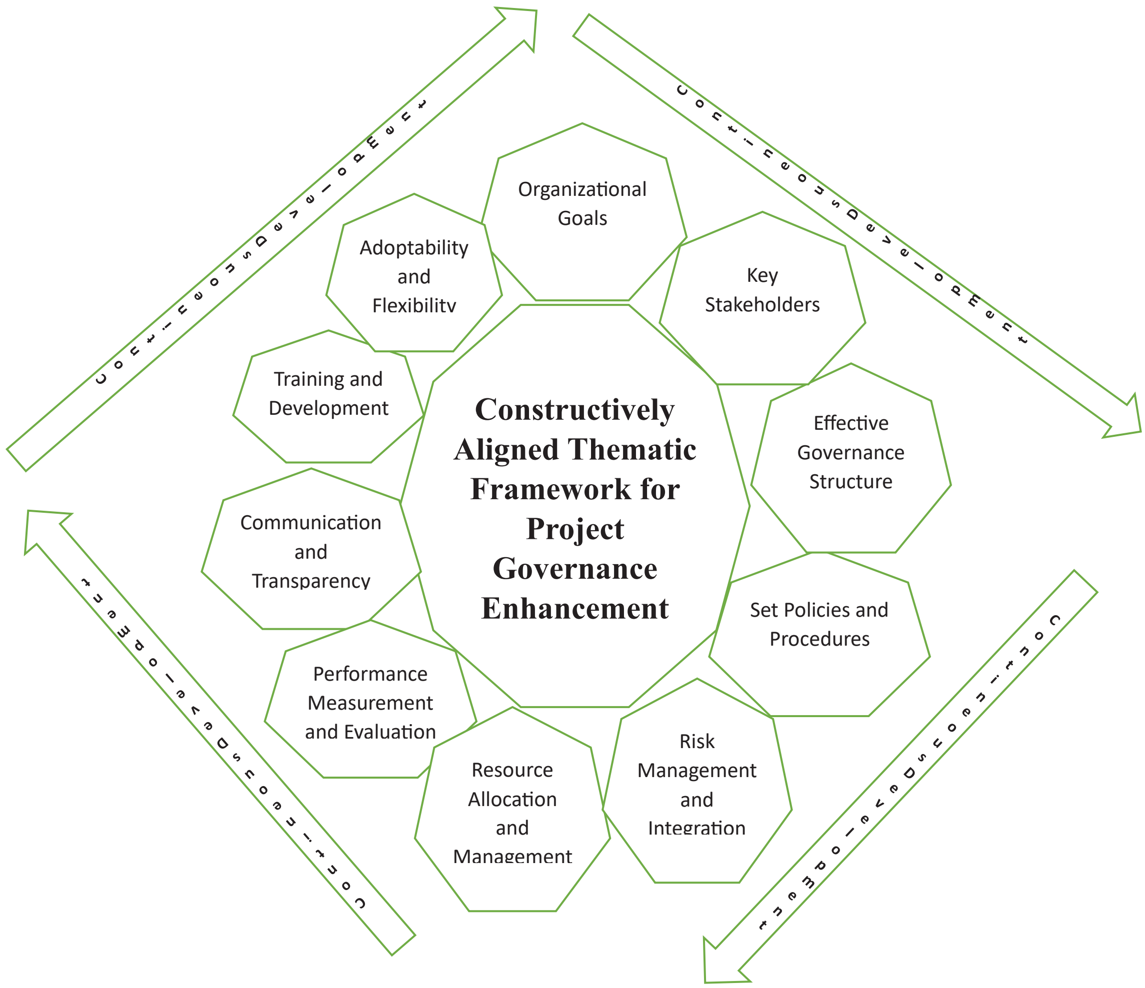


Figure 1: Constructively aligned conceptual framework developed by author (2023)

innovation. Moreover, Sankaran & Pantouvakis (2019) propose a conceptual framework for project governance that emphasises the importance of ethical decision-making, stakeholder engagement, and performance measurement. However, Bredillet (2018) argued that a good conceptual framework for project governance should take into account the socio-political context of the project, including the influence of culture, power dynamics, and institutional frameworks. These recent scholars highlight the need for a conceptual framework for project governance that is grounded in the socio-political context of the project, incorporates principles of adaptive governance, and emphasises the importance of stakeholder engagement, effective communication, and organisational learning.

In light of the outcomes, the following model that constructively aligns to project governance is viewed as follows

CONTRIBUTION OF THE STUDY

According to the findings of this review, project governance, which is often overlooked, is critical when implementing public sector development projects. Especially, the governments of developed as well as developing countries make efforts to implement their countries' development strategies for accelerating the achievement of particular development objectives. Then, the communities are happy to obtain maximum efforts for their livelihood requirements and show their support to the governments by showing that they are willing to contribute to the economic and social development of the country. In this circumstance, projects should implement their objectives-based strategic implementation of project activities while managing all required resources by adopting practice-based project governance to confirm the legitimacy of processes in line with the contents of a logically formulated project framework in a predetermined manner.

Project governance is a vital element that must be integrated into controlling all project processes. As stipulated in the management horizon, the controlling process is the ending function of it, ensuring that the entire process is successfully performed and the objectives of a particular journey are fulfilled. For the projects' perspective, the projects ultimately achieved their performance in terms of financial and non-financial performance by adequately surviving, monitoring, and legitimising the whole system into a significant and meaningful lesson by practicing the project governance practices. As a result, all stakeholders expect to benefit from the qualitative outcomes of good governance. In addition, this is an implicational perspective in terms of developing new discipline methodologies or knowledge, leadership positions that increase capability with a focus on research development or initiatives in that particular role, initiatives to knowledge bases and capacities, initiatives to grow project governance knowledge bases and capacities, including those that build academic or professional researchers' knowledge and understanding of their research opportunities and paradigms, fostering internal and external linkages, corporations, collaborative research and development with other departments, institutions, and organisations, supporting research and development within professional bodies and industry, and organizing or participating in departmental or institutional research forums, debates, and discussions, etc. Furthermore, the study's research findings would facilitate, network, and collaborate on items that provide indicators of contribution to the research environment for project staff, particularly through developing and supporting research networks to develop their project governance discipline or improve research capability inside and outside research academia. Moreover, these research findings would receive the invitations of researchers, professionals, and policymakers in their different project governance roles to present the research or related items as an indication of stakeholders' reputations within and outside of academia. In parallel, the research academics, professionals, policymakers, and related research parties would acquire the research and knowledge potentials to require outreach engagement opportunities that reflect the contributions they make to the wider community in not only Sri Lankan research exposure but also in other global regions in relation to the project governance.

The study's findings serve as a guide for academic and professional contributions that will either directly or indirectly focus on the lessons that researchers will take away from it and the ways in which these research contributions have advanced project management knowledge in governance. By focusing this research contribution on a governance-based project management strategy, public sector development issues are addressed while balancing the development path that emerges from contemporary academic, research, and community engagement philosophies. This strategy helps countries to achieve their sustainable development goals adding real intrinsic value of financial resources / finding.

CONCLUSIONS AND RESEARCH OUTLINE OF FRAMEWORK DEVELOPMENT FOR PROJECT GOVERNANCE

Conclusions

In the pursuit of organisational excellence, the imperative task of optimising value through a constructively aligned thematic framework for project governance enhancement emerges as a paramount endeavor. This comprehensive framework amalgamates diverse perspectives, methodologies, and strategic insights, presenting a clear pathway to elevate project governance to its pinnacle. Through a meticulous fusion of governance intricacies, role clarifications, and strategic congruence, this framework charts a transformative trajectory. It empowers organisations not merely to oversee projects but to orchestrate a symphony of success, resonating with amplified efficiency, agility, and enduring value creation. Ismail *et al.* (2021) underscore the critical assessment of project implementation, probing the fundamental question of success or failure and offering insights into avoidance strategies or avenues for enhanced success. Despite adequate resources, projects may falter, lag, or underperform, often attributed to deficient or misaligned project governance. As Too & Weaver (2014) strongly assert, robust project governance serves as the anchor, steering clear of pitfalls and guiding project implementers toward sustained growth and innovation. It acts as a pivotal negotiator, maintaining cohesive structures to avert setbacks while propelling projects toward their strategic objectives, thereby fulfilling the multifaceted expectations of stakeholders.

The objective of this paper has been to explore the imperative need for a conceptual framework that harmonises effectively with project governance, drawing insights from existing literature and elucidating how such a framework contributes to augmenting organisational value. This study consolidates current knowledge in project governance, endeavoring to broaden the scope by synthesising scholarly findings on various project governance frameworks. Specifically, Bryde & Williams

(2018) advocate perceiving project governance as a complex adaptive system, underscoring continual adaptation, learning, and stakeholder engagement for project success. Christophe Bredillet (2018) stresses the importance of crafting adaptable project governance frameworks that align with the socio-political context, acknowledging cultural nuances, power dynamics, and institutional frameworks. Moreover, Söderlund & Lundin (2018) propose an integrated perspective of project governance, encompassing governance structures, leadership, and project management practices while emphasising alignment and coordination across these dimensions. Concurrently, Hine & Arditi (2020) advocate a collaborative and iterative approach to project governance, emphasising ongoing dialogue, stakeholder engagement, and adaptive governance principles to foster continual learning and innovation. Finally, Sankaran & Pantouvakis (2019) highlight ethical decision-making as pivotal within project governance frameworks, advocating for transparency, accountability, and performance measurement to ensure responsible and sustainable project outcomes. Collectively, these findings underscore the necessity for an adaptive, integrated approach to project governance. Such an approach should consider the project's socio-political context, prioritise stakeholder engagement and collaboration, and uphold principles of transparency, accountability, and ethical decision-making, culminating in responsible and sustainable project outcomes in real-world scenarios

Revolutionising project governance: a modern approach

The suggested framework outlines four pivotal elements crucial for the successful operation of projects in achieving their strategic objectives. Firstly, it emphasises the paramountcy of harmonizing diverse functions within the governance processes, spanning from project design and planning to resource allocation, people management, change governance, stakeholder fulfillment, transparency, and sustainability—ensuring a cohesive unity. Secondly, it underscores the significance of fostering value creation and fostering practical originality in project outcomes, amplifying their impact. Thirdly, it advocates for a structured governance approach, akin to an onion-shaped, nested structure—ranging from project management to strategic governance—illuminating a sequential path for effective governance applications. Finally, it stresses the cyclicality of ensuring a requisite quality of project governance through iterative processes encompassing oversight, control, integration, benefits realisation, stakeholder engagement, nurturing a project culture, and effective leadership. Together, these elements form a comprehensive blueprint for steering projects toward success by instilling coherence, innovation, structured management, and continual enhancement within the governance framework.

Future-proofing projects: constructive alignment for strategic success

The success ful pursuit of organisational strategic objectives hinges on a constructively aligned project governance framework, encapsulating key elements essential for effective project administration. This framework serves as a potent tool, optimising both financial and physical project performance while enriching the socio-economic fabric with intrinsic values. Its adaptable nature allows project-driven organisations to transcend contextual boundaries, delivering predetermined outcomes while enhancing intrinsic worth. Distinguished from management, governance stands as a universal process catalyzing sustainable organisational value. It orchestrates judicious decisions, fostering systematic capabilities for optimal resource utilisation. In contemporary societies, particularly within the public sector, project-driven organisations converge efforts toward sustainable development goals, leveraging various governance mechanisms for competitive advantage. Looking ahead, future research endeavors are poised to elevate this thematic framework into a foundational governance structure, ripe for empirical validation. These studies aim to evolve extended frameworks, addressing burgeoning governance requisites and enhancing project performance and success. By integrating these frameworks, project-driven organis ations are poised to augment their ethical compass, decisiveness, and comprehensiveness. This collective improvement in governance framework fitness is primed to amplify project performance through effective governance practices, fostering a more impactful organisational landscape.

REFERENCES

Almeida, F. (2018) Strategies to Perform a Mixed Methods Study, *European Journal of Education Studies*, 5(1), pp: 137-151.

Andersen, E. S. (2012) Illuminating the role of the project owner, *International Journal of Managing Projects in Business*, 5(1), pp: 67-85.

DOI:https://doi.org/10.1108/17538371211192900

Athukorala, P. C., Ginting, E., Hill, H. & Kumar, U. (2017) The Sri Lankan Economy Charting a New Course [Online] Available from: https://www.adb.org/sites/default/files/publication/373316/sri-lankan-economy.pdf [Accessed: 8th November 2023].

DOI: https://doi.org/10.22617/TCS178786-2

Belout, A. & Gauvreau, C. (2004) Factors influencing project success: the impact of human resource management, *International Journal of Project Management*, 22(1), pp: 1-11.
DOI: https://doi.org/10.1016/S0263-7863(03)00003-6

Bredillet, C. N. & Tywoniak, S. (2000) Beyond the project: A view from the periphery, *Project Management Journal*, 31(3), pp: 33-42.

Bredillet, C. N. (2008) From management science to systemic wisdom: a socio-ecological holism manifesto, *European Management Journal*, 26(6), pp: 385-396.

Bredillet, C. N. (2018) The projectification of the world: Ontological and epistemological implications, *International Journal of Project Management*, 36(6), pp: 942-951.

Bredillet, C., Tywoniak, S. & Tootoonchy, M. (2018) Exploring the dynamics of project management office and portfolio management co-evolution: A routine lens, *International Journal of Project Management*, 36(1), pp: 27-42.
DOI: https://doi.org/10.1016/j.ijproman.2017.04.017

Brunet, M. (2019) Governance-as-practice for major public infrastructure projects: A case of multilevel project governing, *International Journal of Project Management*, 37(2), pp: 283-297.
DOI: https://doi.org/10.1016/j.ijproman.2018.02.007

Bryde, D. & Williams, T. (2018) Managing change in project management: An exploration of the literature, *International Journal of Project Management*, 36(1), pp: 24-40.

Crawford, L. & Pollack, J. (2004) Hard and soft projects: a framework for analysis, *International Journal of Project Management*, 22(8), pp: 645-653.
DOI: https://doi.org/10.1016/j.ijproman.2004.04.004

Crawford, L., Hobbs, B. & Turner, J. R. (2006) Aligning capability with strategy: Categorizing projects to do the right projects and to do them right, *Project Management Journal*, 37(2), pp: 38-50.
DOI: https://doi.org/10.1177/875697280603700205

Dissanayake, D. M. D. D. & Devapriya, K. A. K. (2022) Applicability of public-private partnership to overcome the challenges encountered by public sector building projects in Sri Lanka, In: Sandanayake, Y. G., Gunatilake, S. & Waidyasekara, K. G. A. S. (eds). *Proceedings of the 10th World Construction Symposium*, June 2022, Sri Lanka, pp: 113-124.
DOI: https://doi.org/10.31705/WCS.2022.10

Engwall, M. & Jerbrant, A. (2003) The resource allocation syndrome: The prime challenge of multi-project management?, *International Journal of Project Management*, 21(6), pp: 403-409.
DOI: https://doi.org/10.1016/S0263-7863(02)00113-8

Gareis, R. & Huemann, M. (2006) The role of stakeholders in project management: A content analysis of Austrian project management guidelines, *International Journal of Project Management*, 24(7), pp: 649-663.

Gunawardana, K. A. P., Sandanayake, Y. G., Karunasena, G. I. Jayawickrama, T. S. (2021) Problems and related causes of public procurement process to achieve sustainability in developing countries, *Proceedings of the 9th World Construction Symposium 2021 on Reshaping Construction: Strategic, Structural and Cultural Transformations towards the "next Normal."*
DOI: https://doi.org/10.31705/WCS.2021.40

Hartman, F. T. & Ashrafi, R. (2002) An integrated framework for project portfolio selection, *International Journal of Project Management*, 20(1), pp: 13-23.

Hine, J. L. & Arditi, D. (2020) A review of theory-driven approaches to megaproject research: A call for reflexivity, *International Journal of Project Management*, 38(5), pp: 325-335.

Hine, J. L. & Arditi, D. (2020) Sustainable project delivery: Exploring the determinants of sustainability practices, *Journal of Construction Engineering and Management*, 146(1).

Hjelmbrekke, H., Lædre, O. & Lohne, J. (2014) The need for a project governance body, *International Journal of Managing Projects in Business*, 7(4), pp: 661-677.
DOI:https://doi.org/10.1108/IJMPB-03-2013-0012

Hobbs, B. & Aubry, M. (2008) A multi-phase research program investigating project management offices (PMOs): The results of phase 1, *Project Management Journal*, 39(3), pp: 74-86.

Huemann, M. & Keegan, A. (2007) Developing project management competency: perspectives from the oil and gas industry, *International Journal of Project Management*, 25(1), pp: 26-33.

Huemann, M. & Keegan, A. (2007) Human resource management in the project-oriented organization: Employee well-being and ethical treatment, *International Journal of Project Management*, 25(3), pp: 319-328.
DOI:https://doi.org/10.1016/j.ijproman.2006.10.001

Ismail, A., Zakaria, N. H., Othman, M. K. and Tarmuji, N. H. (2021) Investigating the impacts of project management practices on construction project performance: A structural equation modeling approach, *Journal of Construction Engineering and Management*, 147(5), 04021009.

Ismail, I., Khan, A., Waris, M., Haron, H. and Simamora, B. H. (2021) Exploring the Role of Project Governance and Stakeholder Management in Public Sector Infrastructure Projects, *International Journal of Organizational Business Excellence*, 2(1).
DOI: https://doi.org/10.21512/ijobex.v2i1.7141

Javed, T. & Malik, M. F. (2016) The impact of social media on consumer buying behavior in Pakistan, *International Journal of Marketing Studies*, 8(1), pp: 190-200.

Jayasundara, C., Jayawickrama, V. & Sivagananathan, A. (2013) Effectiveness of Project Management Tools used in the Sri Lankan Public Sector, *Sri Lankan Journal of Management*, 18(3&4), pp: 138-164.

Johansen, T. H. & Grønhaug, K. (2015) Buying professional services: Client experience and credence qualities, *Journal of Business Research*, 68(7), pp: 1488-1494.

Joslin, R. & Müller, R. (2015) Relationships between a project management methodology and project success in different project governance contexts, *International Journal of Project Management*, 33(6), pp: 1377-1392.

Joslin, R. & Müller, R. (2016) The relationship between project governance and project success, *International Journal of Project Management*, 34(4), pp: 613-626.

DOI: https://doi.org/10.1016/j.ijproman.2016.01.008

Kodithuwakku, R. (2022) Incorporating Sustainable procurement practices in the construction industry in Sri Lanka: benefits and challenges, *PM World Journal*, XI, pp: 2330-4480 [Online] Available from: https://pmworldlibrary.net/wp-content/uploads/2022/10/pmwj122-Oct2022-Halwatura-Kodithuwakku-sustainable-procurement-in-sri-lanka-construction-industry.pdf [Accessed: 8th November 2023].

Kumara, S. K., Warnakulasuriya, B. N. F & Arachchige, B. J. H. (2016) Critical Success Factors: En Route for Success of Construction Projects, *International Journal of Business and Social Science*, 7(3), pp: 27-37. Available from: https://ijbssnet.com/journals/Vol_7_No_3_March_2016/4.pdf [Accessed: 8th November 2023].

Langley, A., Smallman, C., Tsoukas, H. & Van de Ven, A. H. (2013) Process studies of change in organization and management: unveiling temporality, activity, and flow, *Academy of Management Journal*, 56(1), pp: 1-13.

DOI: https://doi.org/10.5465/amj.2013.4001

Lim, C. S. & Mohamed, M. Z. (2015) Criteria of project success: An exploratory re-examination, *International Journal of Project Management*, 33(4), pp: 772-783.

Maylor, H., Brady, T., Cooke-Davies, T. & Hodgson, D. (2006) From projectification to programmification, *International Journal of Project Managemen*t, 24(8), pp: 663-674.

DOI:https://doi.org/10.1016/j.ijproman.2006.09.014

Maylor, H., Vidgen, R., Carver, S. & Fink, D. (2006) Towards a duality theory of project management, *Project Management Journal*, 37(3), pp: 48-59.

Müller, R. & Jugdev, K. (2012) Critical success factors in projects, *International Journal of Managing Projects in Business*, 5(4), pp: 757-775.

DOI: https://doi.org/10.1108/17538371211269040

Müller, R. & Turner, J. R. (2007) Matching the project manager's leadership style to project type, *International Journal of Project Management*, 25(1), pp: 21-32.

DOI: https://doi.org/10.1016/j.ijproman.2006.04.003

Müller, R. & Turner, J. R. (2010) *Matching the project manager's leadership style to project type*, Newtown Square, PA: Project Management Institute.

Müller, R. & Whitty, S. J. (2020) *Human factors in project management: Concepts, tools, and techniques for inspiring teamwork and motivation,* Routledge.

Müller, R. (2009) Project governance choices: A real options analysis, *Project Management Journal*, 40(1), pp: 93-103.

Nanthagopan, Y., Williams, N. L. & Page, S. (2016) Understanding the nature of Project Management capacity in Sri Lankan non-governmental organisations (NGOs): A resource-based perspective, *International Journal of Project Management*, 34(8), pp: 1608-1624.

DOI: https://doi.org/10.1016/j.ijproman.2016.09.003

Parellel, M., Söderlund, J. & Lundin, R. A. (2018) Creating change in project organizations: The role of storytelling, *Project Management Journal*, 49(6), pp: 25-38.

Pellegrinelli, S. (2002) Shaping context: The role of project and project management in constructing and modifying organizational context, *Journal of Management Studies*, 39(7), pp: 887-902.

Pemsel, S. & Müller, R. (2012) The governance of knowledge in project-based organizations, *International Journal of Project Management*, 30(5), pp: 663-674.

Pemsel, S. & Wiewiora, A. (2013) Project management office a knowledge broker in project-based organizations, *International Journal of Project Management*, 31(1), pp: 31-42.

DOI: https://doi.org/10.1016/j.ijproman.2012.03.004

Pinto, J. K. & Slevin, D. P. (2019) *Critical success factors in project management*, Project Management Institute.

Pollack, J. (2007) The changing paradigms of project management, *International Journal of Project Management*, 25(3), pp: 266-274.

DOI: https://doi.org/10.1016/j.ijproman.2006.08.002

Pollack, J. (2007) *The changing paradigms of project management*, Upper Saddle River, NJ: Pearson Education

Samaratunge, R. & Pillay, S. (2011) Governance in developing countries: Sri Lanka and South Africa compare, *International Journal of Public Administration*, 34(6), pp: 389-398.

DOI: https://doi.org/10.1080/01900692.2011.570003

Sanderson, J. (2012) Risk, uncertainty and governance in megaprojects: A critical discussion of alternative explanations, *International Journal of Project Management*, 30(4), pp: 432-443.

DOI: https://doi.org/10.1016/j.ijproman.2011.11.002

Sankaran, S. & Pantouvakis, A. (2019) Evaluating the effectiveness of project management maturity models: A systematic review, *International Journal of Project Management*, 37(7), pp: 960-974.

Shazi, R., Gillespie, N. & Steen, J. (2015) Trust as a predictor of innovation network ties in project teams, *International Journal of Project Management*, 33(1), pp: 81-91.

DOI: https://doi.org/10.1016/j.ijproman.2014.06.001

Shenhar, A. J. & Dvir, D. (2018) *Reinventing project management: The diamond approach to successful growth and innovation,* Harvard Business Review Press.

Söderlund, J. & Borg, E. (2011) The projectification of everything: Projects as a human condition, *Project Management Journal*, 42(4), pp: 4-16.

Söderlund, J. & Borg, T. (2011) The project economy: A conceptual framework, *International Journal of Project Management*, 29(8), pp: 991-1001.

Söderlund, J. & Lundin, R. A. (2018) *Project management scholarship: Theories, contexts, and advancements*, Routledge.

Sri Lanka, Department of Project Management and Monitoring (2017) Progress of development projects and programmes being implemented in 2017 Department of Project Management and Monitoring Ministry of Development Assignments, pp: 1-291 [Online] Available from: https://www.treasury.gov.lk/api/file/ef15805b-a5a3-49fb-91d1-d97db7fb2874 [Accessed: 8th November 2023].

Srivastava, S. K. (2007) Green supply-chain management: A state-of-the-art literature review, *International Journal of Management Reviews*, 9(1), pp: 53-80.

DOI: https://doi.org/10.1111/j.1468-2370.2007.00202.x

Thiry, M. (2010) Combining value and project management into an effective programme management model, *International Journal of Project Management*, 28(8), pp: 793-805.

Thiry, M. (2010) *Program Management*, Gower Publishing, Ltd.

Too, E. G. & Weaver, P. (2014) The management of project management: A conceptual framework for project governance, *International Journal of Project Management*, 32(8), pp: 1382-1394.

Turner, J. R. & Müller, R. (2003) On the nature of the project as a temporary organization, *International Journal of Project Management*, 21(1), pp: 1-8.

DOI: https://doi.org/10.1016/S0263-7863(02)00020-0

Turner, J. R. & Müller, R. (2020) *The project manager's guide to mixing methods in evaluation,* Project Management Institute

Van der Waldt, G. & Du Plessis, A. J. S. (2016) A model to integrate risk management into the strategic planning process, *South African Journal of Business Management*, 47(2), pp: 37-49.

Weerasekara, D. T., Disaratna, V., Withanage, K. T. & Perera, B. A. K. S. (2021) Procurement management in the foreign-funded construction projects implemented in Sri Lanka, *International Journal of Construction Management*, pp: 1-13.

DOI: https://doi.org/10.1080/15623599.2021.1956674

Wernerfelt, B. (1984) A resource-based view of the firm, *Strategic Management Journal*, 5(2), pp: 171-180.

DOI: https://doi.org/10.1002/smj.4250050207

Williams, T. (2005) Assessing and moving on from the dominant project management discourse in the light of project overruns, *IEEE Transactions on Engineering Management*, 52(4), pp: 497-508.

DOI: https://doi.org/10.1109/TEM.2005.856572

Winter, M. & Smith, C. (2006) Role of project management in alleviating problems in information systems development, *International Journal of Project Management*, 24(3), pp: 175-182.

Winter, M., Smith, C., Morris, P. W. G. & Cicmil, S. (2006) Directions for future research in project management: The main findings of a UK government funded research network. International, *Journal of Project Management*, 24, pp: 638-649.

DOI: https://doi.org/10.1016/j.ijproman.2006.08.009

Yong, A. & Muller, R. (2010) Contractual and relational governance in IT outsourcing: Propositions for their effects on control and coordination of outsourced work, *Journal of Information Technology*, 25(1), pp: 62-73.

Zwikael, O. & Smyrk, J. R. (2015) A general framework for gauging the performance of initiatives to improve project management, *International Journal of Project Management*, 33(2), pp: 311-322.

Sri Lanka Journal of Social Sciences 2023 46 (2): 159-176
DOI: https://doi.org/10.4038/sljss.v46i02.8765

RESEARCH ARTICLE

Impact of effective leadership style on school performance: with reference to Central Colleges in the Western Province of Sri Lanka

Lalitha S. Fernando[1*], E. Achini Indrachapa Kularathna[1] and I. D. C. D. Kumarasinghe[2]

[1]*Department of Public Administration, Faculty of Management Studies & Commerce, University of Sri Jayewardenepura, Sri Lanka.*
[2] *University of Moratuwa, Sri Lanka.*

Abstract: The primary goal of any school is to improve the academic performance of students, which in turn leads to higher performance by school children and the school as well. Research has proved that school leaders can make a difference in school and student performance. Thus, the leadership style and the role of principals are crucial in directing their schools towards better performance. Central Colleges in Sri Lanka as secondary and collegiate levels of schools have shown higher performances in the past, but there is evidence that the performances of the Central Colleges are declining at present. Having explored the meaning of school performances, this study identifies characteristics of effective leadership and examines the impact of the effective leadership style on the school performance of Central Colleges in the Western Province of Sri Lanka. Based on quantitative research methods, primary data were collected using a structured questionnaire from a sample of 357 teachers using a random sampling method. Descriptive and inferential statistics were used to analyse the data. Based on the analysis five characteristics of effective leadership were identified explaining 81.4% variance in school performance and these characteristics significantly and positively affect school performance. Thus, school performances could be improved if principals are inclusive, innovative, resourceful, and thoughtful of others, encourage their teachers to get the best results, and create a stimulating environment for improving performance as there is a lack of research specifically, exploring the qualities of effective leadership style, this study filled an apparent knowledge gaps in prior research concerning effective leadership characteristics with empirical data.

Keywords: Effective leadership, school performance, Central Colleges, school principal.

INTRODUCTION

One of the main goals of the education system is to produce quality human resources, which is important for sustainable development. School education provides the foundation for improving human resources by providing knowledge, improving skills, and nurturing attitudes for the development of the self and the nation. Leadership is often regarded as one of the most important determinants of success or failure (Ogawa & Scribner, 2002). It could be argued that the leadership style and the principal largely determine the performance of schools, hence both factors are important for the survival of any school. The role of the principal today is very different from the past. The task of the school has become a mere preparation of its children to enter the world of work. For this purpose, both the school curricula and the role of the principal must be changed accordingly (Pushpakumara, 2016). The leadership role of the principal is vital to improve teachers' performance. Thus, the learning outcomes of students will increase with high-performing teachers. To improve teachers' performance, a principal as the leader must have certain behaviours to accommodate the goal-oriented teaching-learning environment (Pardosi & Utari, 2021).

The performance of a school needs to be measured both in terms of academic and non-academic aspects. Most probably in Sri Lanka, some schools have recorded

* Corresponding author (rlsf@sjp.ac.lk; https://orcid.org/0000-0003-0650-8393)

higher performance and others may be declining in their performance. Various levels of performance are seen in schools and some schools perform well in academic studies while several other schools are well performed in extracurricular activities. This may be due to the leadership qualities of these schools, as some school principals give priority to academic performance while others pay' greater attention to' extra-curricular activities. There is evidence that Central Colleges in Sri Lanka have shown higher performances in the past, but in the recent past, these schools have not functioned well. In this context, this study tries to identify effective leadership qualities and examine to what extent these leadership qualities affect school performance.

Background of the study and problem identification

In Sri Lanka, approximately 4 million children are enrolled in more than 10,165 public schools across the country (Sri Lanka, Ministry of Education, 2019). The government spends about 1.9% of its GDP annually on education (Central Bank of Sri Lanka, 2020). It could be argued that when the necessary resources are provided to schools through resource allocation, the performance of each school may be considered equal or better. However, some schools are reported to have high performance levels in terms of academic activities and additional academic activities, while certain other schools have not recorded such achievements.

Central Colleges in Sri Lanka are a type of schools where students can study up to the post-secondary (collegiate) level. The first Central College was initiated in 1941 in Matugama in Kalutara District and to date, there are 54 Central Colleges.

There is evidence that the Central Colleges played a significant role in Sri Lanka's educational history, but now, they are unable to achieve their goals successfully. Many Grade 5 scholarship holders from the remotest areas of the country, try to get admission to popular schools in big cities such as Colombo bypassing the well-run Central Colleges located in their electorates or districts by getting the official approval of the Ministry because a majority of the Central Colleges have been neglected on their early usefulness and students and their parents have lost faith in these schools (Fernando, 2001).

In the current era, the academic performance of Central Colleges in Sri Lanka has declined when compared to the selected National Schools. According to the statistics of the Western Provincial Educational Department (2017), when considering the pass rate in the three core subjects of Sinhala, English, and Mathematics at the G.C.E. O/L Examination in 2016, the overall academic performance of the Central Colleges in the Western Province is lower compared to National Schools. Their pass rate in relevant subjects is lower and the level of failure rate is higher. Nevertheless, in the same subjects, students at selected National Schools in the Western Province have recorded higher performances than the students of Central Colleges at the G.C.E. Ordinary Level Examination in 2016. The academic performance of the Central Colleges in Sri Lanka has declined when compared to some National Schools (Sri Lanka, Western Provincial Educational Department, 2017).

The majority of Central Colleges have recorded the worst results for the G.C.E. Ordinary Level Examination and G.C.E. Advanced Level Examination. There are 22% of Central Colleges that have reported poor level results for the G.C.E. Ordinary Level Examination in terms of qualifying for the G.C.E. Advanced Level Examination. There are 78% of Central Colleges that have obtained lower-level results for the G.C.E. Advanced Level Examination in terms of qualifying for university entrance (Fernando *et al*., 2020). The reason behind this situation may be that many students who have good results for the G.C.E. Ordinary Level examination leave their Central colleges and enrol in national schools to studying the G.C.E Advanced level examinations. Because of that, the Central colleges lack good students in the advanced level classes. On the other hand, Fernando (2001) mentioned that some principals of central colleges have no power and, on some occasions, these principals do not have adequate skills to manage their schools. According to the author, there is doubt whether central colleges were able to achieve their initial goals of establishment.

As Central Colleges are mixed schools, the principals of those schools should have additional skills and experience in managing their schools. But it is evident that some principals of Central Colleges have no power, and also on some occasions, they do not have adequate skills to manage their schools (Fernando, 2001). The concepts of power and leadership are closely linked and it can be considered as the ability to influence others (Lunenburg, 2012). Leaders use power to attain group goals, and if leaders know the operation of power in an organisation, it enhances their capacity to be effective leader (Coventry University, 2022).

This study argues that Central Colleges need strong leadership styles to be effective as principals' poor leadership qualities may lead to a decline in school performance. Thus, the main purpose of this study is to explore the effective leadership styles that enhance the school performance of the Central colleges. Several researchers have examined the effect that school leadership styles on students' academic performance, but there is a lack of research examining school performance involving academic and other activities. It is unknown how key leadership indicators influence student performance including extracurricular activities.

LITERATURE REVIEW

This section reviews the theoretical background of the related variables including meaning and definitions of leadership, school leadership, theories on leadership styles and effective leadership, organisational performance / school performance, and empirical research on effective leadership and school performances.

Leadership

Leadership is a process of social influence, which enhances the efforts of others, in achieving the goal (Kruse, 2013) and it is conceptualised as how a leader influences a group to achieve communal goals (Jaques, 2017). Thus, leadership can be defined as the ability to influence a group to achieve organisational goals. Leadership is a process that focuses on building and influencing people to achieve organisational goals (Moorhead & Griffin, 2012) and has a positive impact on followers' performance and satisfaction (Casimir *et al.*, 2006) as well as being uplifting and supportive (Sarros *et al*., 2008). It can be defined as the ability to influence others by providing them with helpful and efficient organisational resources to carry out strategy and accomplish common objectives (Northouse, 2018, cited in Parveen *et al.*, 2022).

School leadership

Education leadership is critical in developing the future world. School leadership may include people who perform various roles and responsibilities such as principals, deputy principals, leadership teams, school governing bodies, and school-level staff involved in leadership activities (Pont *et al*., 2008).

> "Effective leaders are purposeful, and they trust their followers who voluntarily perform toward better results. It is necessary to have trust in one's abilities as well as the others, so that empowerment, true delegation, and independent actions can be facilitated, then a mistake can be addressed more openly, and also individual and mutual responsibilities have to be respected and appreciated" (Huber, 2004).

It is a process whereby a school leader is employed to supervise staff, assess situations and apply leadership styles to control and adjust situations (Boonla & Treputtharat, 2014, cited in Tedla *et al*., 2021).

> "Leadership of the school principal is the principal's effort to influence, motivate, guide, and direct teachers, staff, students, parents, and other related individuals to work together to achieve set goals. To create this role, the principal must show an influential and typical attitude. The principal as a leader must understand that the success of the school is determined by his behaviour" (Pardosi & Utari, 2021).

Over recent years, Virtual and Augmented Reality (VR and AR) technologies have quickly become part of education leadership practices, becoming an indispensable asset that revolutionises learning experiences at every level, these technologies will revolutionize communication between educational institutions' from virtual staff meetings to immersive training sessions, as they collaborate and innovate for change (Sornberger, 2023).

Leadership style

"Style" means the way of performing activities. A person's leadership style reflects how he/she influences others in a society or in an organisation (Timothy *et al*., 2011). Leadership styles mean the way leaders guide, influence, and motivate their subordinates. In the field of education, the relevance and effectiveness of leadership style depending on the functional situation in which school leaders balance their style with the tasks of those under their authoritye. (Lunenburg & Ornstein, 2021). Diverse types of leadership styles are discussed in the literature including, democratic, laissez-faire, transformational, distributed, instructional, transactional, servant, and ethical leadership.

Transformational leadership is a process whereby leaders transform an organisation by enhancing the attitude, motivation, norms, behaviours, achievements, and actions of their followers (Litz *et al*., 2016). This leadership style depends on prominent levels of communication from management to meet goals. Leaders motivate employees and enhance productivity and efficiency through communication and high visibility (Kramer, 2020).

A transactional leader's goal is to clearly communicate to his followers what is expected from them, both in terms of expectations and actions, and to support them by offering material and psychological rewards for accomplishing tasks. (Walumbwa *et al.*, 2008). This style starts with the idea that team members agree to obey their leader when they accept a job, and the transaction usually involves the organisation paying team members in return for their effort and compliance (Amanchukwu *et al*., 2015). Further, the authors argued that these leaders have a right to punish team members if their work does not meet the appropriate standard, and the minimalistic working relationships that result (between staff and managers or leaders) are based on this transaction (an effort to pay). This leadership style requires clear leader-follower (manager-employee) relationships with clarified mutual outcomes (Densten, 2006).

Ethical leadership is a form of leadership in which individuals demonstrate and act towards the common good that is acceptable and desirable in all areas of their lives and consists of three main elements; Be a role model, communicate, and champion the importance of ethics (www.villanovau.com, 2020). Ethical leadership as a social, relational practice is concerned with the moral purpose of education (Angus, 2006, cited in Ehrich *et al.*, 2015). "Ethical leadership is uniquely important because this form of leadership can promote ethical conduct at work; set and communicate ethical standards of the organization" (Brown & Mitchell, 2010, cited in Okpozo *et al.*, 2017).

High student achievement is expected by instructional leadership through the establishment of goals and expectations, the use of strategic resources, the development of curricula, ongoing teacher professional development, a positive learning environment, and a focus on student behavior (Hallinger, 2003, cited in Litz *et al*., 2016). An instructional leader promotes homogeneous approaches such as teaching and behavior management in the school, monitors teaching, and makes sure professional development is focused on teaching and learning (Muijs, 2011).

Distributed leadership permits teachers to focus on specific areas that support the accomplishment of goals for the school community, and they require leadership accepted by the followers (Litz *et al*., 2016). The success of distributed leadership depends on a strong leader, who is likely to be incorporating the benefits of distributed leadership into the transformational role already (Litz *et al.*, 2016). It holds theoretical promise in terms of organisational improvement and achievement.

Laissez-faire leaders excercise minimal direction and face time with subordinates who have more freedom to make decisions (Kramer, 2020). The leader only acts as a nominal leader, who lacks capacity for direct supervision of employees and fails to provide regular feedback to those under his supervision (Kramer, 2020). This style is described as the most effective style, especially where followers are mature and highly motivated. The leader in this case acts as the contact person with the group's external environment, very little power is used (Omar, 2016).

Democratic leadership has features such as delegation of authority, participatory planning, and mutual communication. Here, the major focus is on sharing and the manager shares decision-making with the subordinates. Even though the manager invites contributions from the subordinates before making a decision, he/she retains the final authority to make decisions. He/she may allow the subordinates to take vote on an issue before a decision is taken (Dubrin, 1991, cited in Omar & Kavale, 2016). Thus, empowerment, teamwork, and collaboration are important aspects of this type of leadership. "It has been observed that a school is more effective when those who are affected by the organisation's decisions are fully involved in the decision-making process" (Omar & Kavale, 2016).

Effective leadership

An effective leader must be a person who is visionary, passionate, creative, flexible, inspiring, innovative, courageous, imaginative, and experimental and initiates change (Amanchukwu *et al.*, 2015). Effective leadership is the successful application of the influence to mission accomplishment, and they can obtain the cooperation of other people and harness the resources provided by that cooperation to attain organisational goals (May-Vollmar & Kelly, 2017). Effective leadership focus on establishing goals and high expectations, planning, coordinating and evaluating teaching and the curriculum, including systematic use of assessment data to monitor learning and adjust provision, leading teacher professional development, ensuring a supportive and orderly environment, resourcing strategically, and developing and maintaining an evaluative mindset for ongoing improvement (Centre for Education, Statistics and Evaluation, 2021).

This style of leadership is crucial for teachers and students to enhance performance at the highest level (Brinia & Papantoniou, 2016) while it is also essential to improve the efficiency and equity of schooling (Pont *et al.*, 2008). Emotional intelligence is considered as one of the predictors of effective leadership practices (May-Vollmar & Kelly, 2017). This Emotional Intelligence is a variable that has recently gained popularity as a potential underlying attribute of effective leadership (Sosik & Megerian, 1999, cited in May-Vollmar & Kelly, 2017).

The effectiveness of leadership style must be defined in terms of the leader's behaviour and the demands of the situation, while some authors see this behaviour as resilient, and others see it as rigid. Thus, what constitues effective leadership must explored further. When this style uses a particular behaviour in an appropriate situation, then it will give results that are more effective. Yukl (2010) lists some indicators of leadership effectiveness including follower attitudes, perceptions of their leader, the extent to which the performance of the team or organisational unit is enhanced, and the attainment of goals facilitated. According to Hallinger & Heck (1996) better communication among staff, greater mutual trust and understanding, greater cooperation and collaboration, and more active engagement of staff are some examples of qualities of an effective leadership style. Cooper & Nirenberg (2012) describe that the effectiveness of leadership is the practice of applying several principles: building a collective vision, mission, and set of values that help people focus on their contributions, bringing out their best, establishing a fearless communication environment that encourages accurate and honest feedback and self-disclosure, making information readily available, establishing trust, respect, and peer-based behaviour as the norm, be inclusive and patient, showing concern for each person, demonstrating resourcefulness and the willingness to learn and creating an environment that stimulates extraordinary performance. Effective leadership emphasizes impartiality, equality, and honesty, develops employees, and promotes work ethic and integrity (Muchiri *et al.*, 2011). Effective leadership is the ability of a leader to execute a company's vision and create a work culture that allows employees to contribute meaningfully to the achievement of their employer's goals.

Today with an ever-increasing demand and pressures of modern education, leaders' mindfulness and resilience as two essential pillars of effective leadership have become more critical than ever. By cultivating mindfulness practices into their leadership style, leaders will become more present, focused, and adaptable, ultimately resulting in more effective and sustainable leadership (Sornberger, 2023).

School performance

In some studies, school performance was confirmed by Grade Point Average (GPA) in various subjects (Burke, 1989) while other studies looked at school performance as test scores, drop-out rate, transfer rate, and participation rate (Rumberger & Palardy, 2005). School performance indicators should be measured not only by the skills and values of the graduates but also by the level of school experience of the children in school and the academic results are not the only criteria of school performance (Rothstein, 2000).

School performance is a broad term for assessing results of education including, knowledge, intellectual stimulation, vision, situational awareness, relationship, validation, culture, order, visibility, communication, and discipline (Jafari *et al*., 2009, cited in Tedla *et al*., 2021). School performance is inferred as an indicator of yearly progress of successful school activities, such as learning, productivity, working conditions, staff satisfaction, parent satisfaction, and teachers' morale (Wahab *et al.*, 2015).

The non-academic performance of a school is determined by the school leadership, annual student engagement, school culture, environment, academics/ student focus, teacher commitment, school-community relations, student-teacher well-being, the scope of extra academic activities, and student expectations with the school and its physical services (Gunter & Ribbins, 2003, cited in Urick, 2016).

This study assess school performance in terms of both academic performance and non-academic performance. The academic performance included both examination results of the General Certificate of Education of Ordinary Level (GCE O/L) and General Certificate of Education of Advanced Level (GCE A/L) examinations. Non-academic performance include achievements in sports and extra-curricular activities (dancing, music, and literature) achieved at different levels namely, zonal level, provincial level, all-island level, and international level and well-being of the students.

Improving students' well-being in schools requires a whole-school approach, involving teachers and parents, as the students' well-being and their success in and outside school depends on their ability to use their competencies for democratic culture (Council of Europe, 2022). Further, well-being understood in terms of health and happiness and it includes mental and physical health, physical and emotional safety, a feeling of belonging, a sense of purpose, achievement, and success.

Effective leadership and school performances: empirical evidence

In the last 25 years, much attention has been placed on educational leadership and its impact on student outcomes. Internationally, there is the appreciation that school leadership is an extremely important variable that can make all the difference in schools (Pina *et al.*, 2015). Pont *et al.* (2008) state that school leaders can influence over school and student performance if they are granted autonomy to make important decisions. In particular, researchers in the area of educational leadership have attempted to identify links between school leadership and student achievement (Kythreotis *et al.*, 2010). The empirical literature shows that both the nature and the degree of principals' impact continue to be a subject of debate (Pitner, 1988; Rowan *et al.*, 1982; Van de Grift, 1999, cited in Kythreotis *et al.*, 2010). Previous research on the effects of school leadership on students' academic achievement has produced contradictory findings. Some studies found that the effects are indirect, if not difficult to measure (Hallinger & Heck, 1996, 1998; Leithwood & Jantzi, 1990; Witziers *et al.*, 2003).

> "Transformational leadership is mainly based on pedagogically oriented authority which is essential for the promotion of school effectiveness, indicating that the expertise and personal reward, as well as the referent power bases, partially mediate the relationship between transformational leadership and school effectiveness and a blend of transformational and pedagogical qualities and qualifications may promote school effectiveness" (Nir & Hameiri, 2014).

According to Leithwood *et al.* (2010) and Leithwood & Jantzi (1999), transformational educational contexts are characterised by increases in shared vision-building, meeting performance expectations, consensus, intellectual stimulation, satisfaction, and enthusiasm. This leadership style has a significant impact on schools' climate and students' academic achievement (Kaleem *et al.*, 2021).

On the contrary, regarding the direct effects of principals' leadership on student achievement, Kythreotis *et al.* (2010), argue that a principal's leadership style is a significant factor that plays a major role in student achievement. There is increasing evidence that within each school, school leaders can contribute to improving student learning by shaping the conditions and climate in which teaching and learning occur (Pont *et al.*, 2008). Griffith (2014) found the direct effect of principal transformational leadership on school performance and the leadership of principals was positively related to organisational latency, or commitment, which was positively associated with the perceived effectiveness of schools. Lipham (1981, cited in Blase, *et al.*, 1986) argued strongly that the leadership characteristics of school principals are critical to teacher performance and school effectiveness. As per Koh *et al.* (1995), transformational leadership was found to have indirect effects on student academic achievement, and according to Heck (1992), principal leadership affects school academic achievement at least indirectly. Principals who use democratic and transformational leadership style, their students and staff perform better than those who are using other types of leadership styles (Omar & Kavale, 2016). Principals' leadership styles do influence school performance either

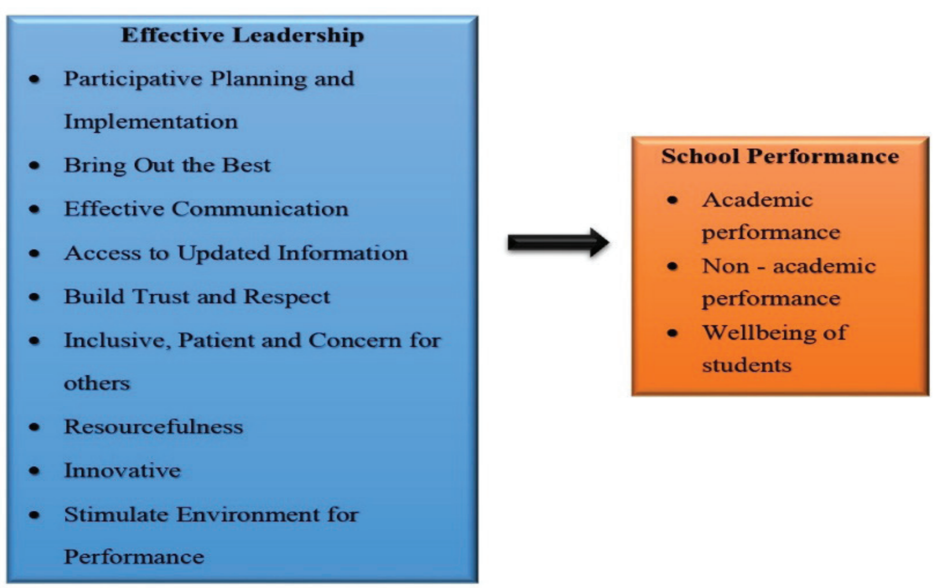


Figure 1: Conceptual framework explaining the causal relationships between effective leadership and school performance
Source: Literature review

positively or negatively, but no single leadership style is always appropriate (Tedla *et al*., 2021). According to Alhothali (2021), teachers lack many 21st Century skills that require educational life skills, a creative environment, creative thinking, communication skills, and the ability to use modern technology and improve learning outcomes.

Based on the literature review, a conceptual framework is drawn explaining how effective leadership affects school performance and depicted in Figure 1**.**

Based on these discussions, the following hypotheses were developed.

• Effective leadership significantly influences school performance.

As this study assumes Effective Leadership consists of nine dimensions; the following sub-hypotheses were derived.

H1: Participatory planning and implementation significantly influence school performance.

H2: Bringing out the best significantly influences school performance.

H3: Effective communication significantly influences school performance.

H4: Access to updated information significantly influences school performance.

H5: Building trust and respect significantly influences school performance.

H6: Inclusive, patient, and concerned for others significantly influence school performance.

H7: Resourcefulness significantly influences school performance.

H8: Innovativeness significantly influences school performance.

H9: Stimulating environment significantly influences school performance.

A dynamic leadership style is highly effective as it leads to high school performance. Thus, effective leadership allows for many aspects of transformational leadership (Fernando *et al*., 2020). Yang (2014) pointed out that the principal needs to improve his transformational leadership while improving the school and needs to create conditions to promote the ethics of school members with a higher level of leadership, making different members at different times motivated, respected, honest, satisfied, and reaches unanimous. Transformational leaders are those who stimulate and inspire followers to achieve extraordinary outcomes and, in the process, develop their leadership capacity. Transformational leaders help followers grow and develop into leaders by responding to individual followers' needs by empowering them and by aligning the objectives and goals of the individual followers, the leader, the group, and the larger organization (Bass & Riggio, 2009, cited in Cherry, 2020). Leadership effectiveness is fundamentally the practice of several principles.

> "Building a collective vision, mission, and setting values that help people focus on their contributions, bringing out their best, establishing a fearless communication environment that encourages accurate and honest feedback and self-disclosure; making information readily available; establishing trust, respect, and peer-based behaviour as the norm; being inclusive and patient, showing concern for each person; demonstrating resourcefulness and the willingness to learn; and creating an environment that stimulates extraordinary performance" (Cooper & Nirenberg, 2012: p.5).

Transformational leaders are collaborating with their employees to bring about changes. Thus, this study argues that the characteristics of transformational leadership are similar to some dimensions of effective leadership.

School performance

School performance is considered here as both academic performance and non-academic performance (Fernando *et al.*, 2020). Non-academic performances are considered achievements in sports, aesthetics, and the well-being of students (Fernando *et al.*, 2020).

Therefore, the focus of this study is to examine the impact of effective leadership styles on the school performance of intermediate colleges in the Western Province of Sri Lanka. Accordingly, the study established the following specific objectives to be achieved through quantitative research methods:

1. To identify characteristics of effective leadership.

2. To examine the impact of effective leadership styles on school performance of Central Colleges in the Western Province of Sri Lanka.

3. To provide policy measures to enhance school performance of Central Colleges in the Western Province of Sri Lanka.

METHODOLOGY

A survey using a questionnaire was administered on teachers by a research assistant. The study area is the Western Province of Sri Lanka including Colombo, Gampaha, and Kalutara Districts. It consists of 11 educational zones, 38 educational divisions, and 14 Central Colleges. The population of the research is the total number of teachers, which is 1793 in 14 Central Colleges in the Western Province in 2017 (Sri Lanka, Ministry of Education, 2018). According to Sarwar (2022), the principal is responsible for supporting the teachers in their teaching practices. Among his/her responsibilities, principals must give honest and effective leadership, resulting in improved professional presentation among teachers. The principal is responsible to give highly valued visions that are focused on their day-to-day methods and that serve to foster a good culture that is supportive of exceptional teacher performance. That is why teachers are studied to understand the leadership of school principals.

Based on the systematic random sampling method, 357 teachers were selected as the sample of the study from the 14 Central Colleges in the Western Province, which is 20% of the total number of teachers from each school. Questions were asked teachers about the characteristics of principals. Data were collected using a structured questionnaire and analysed with the use of descriptive and inferential statistics.

ANALYSIS

The first part of the analysis presents a sample description. Alpha Test and Factor Analysis were conducted to ensure the reliability and validity of the findings. Finally, correlation and regression analysis was conducted to examine the impact of leadership style on school performance.

Analysis of demographic variables

About 82% of the sample were female teachers and 92 % of teachers are married. About 59% of the sample has a first degree and 29% of the sample were qualified from the National College of Education. Nearly, 68% of the teachers have been involved in school administrative activities and nearly, 41% of them are class teachers.

Analysis of descriptive statistics

The Dependent Variable of School Performance of the study has four dimensions, namely, Academic Performance and Non-academic Performance consisting of Aesthetic, Sports, and Well-being of students. The mean values of these variables are 4.1, 4.0, 3.9, and 4.1, respectively. The Likert 5-point scale was employed to

Table 1: Descriptive statistics of the study

N=357	Mean	Standard Deviation	Skewness	Minimum	Maximum
Effective Leadership					
Participative Planning and Implementation (PPI)	3.6	0.8	-0.5	0.6	5
Bring Out the Best (BOB)	4.2	0.8	-1.1	1	5
Effective Communication (EC)	3.7	0.9	-0.8	0.0	5
Access to Updated Information (AUI)	3.7	0.8	-0.6	0.0	5
Build Trust and Respect (BTR)	3.8	0.8	-0.7	1	5
Inclusive, Patient and Concern for others (IPC)	3.6	0.8	-0.4	0.0	5
Resourcefulness (RF)	3.7	0.8	-0.7	0.0	5
Innovative (INN)	3.8	0.8	-1.0	0.0	5
Stimulate Environment for Performance (SEP)	3.8	0.8	-0.8	0.0	5
School Performance					
Academic Performance (AP)	4.1	0.8	-1.3	0.0	5
Nonacademic Performance- Aesthetic (NPA)	4.0	0.8	-1.0	0.0	5
Nonacademic Performance - Sports (NPS)	3.9	0.9	-1.1	0.0	5
Wellbeing of students (WS)	4.1	0.8	-1.3	0.0	5

Source: Field data

Table 2: Factor Loading, Cronbach's alpha reliability coefficient, average variance extracted (AVE) and composite reliability of constructs (CR)

Variables	Items	Factor loading	TVE	Reliability (Cronbach's Alpha)	AVE	CR
Effective Leadership						
Participative Planning and Implementation (PPI)			66.615	0.872	0.666	0.938
PPI_1	The principal sets new objectives to enhance the performance of the school	0.881				
PPI_2	Interested in achieving the goals set by the principal	0.890				
PPI_3	The principal allows to express your views when designing the plans of the school	0.774				
PPI_4	The principal check whether the school's plans are properly implemented	0.814				
PPI_5	The Principal allows you to participate in the school decision-making process	0.708				
Bring Out the Best (BOB)			78.579	0.864	0.785	0.916
BOB_6	Principal encourages us to get the best results	0.875				
BOB_7	The principal focuses on developing the school's reputation	0.903				
BOB_8	The principal focuses on developing the resources of the school	0.881				
Effective Communication (EC)			83.459	0.801	0.835	0.910
EC_9	You can easily communicate with the principal	0.914				
EC_10	The principal has created an environment of free expression within the school	0.914				
Access to Updated Information (AUI)			70.883	0.793	0.708	0.879
AUI_11	The principal provides accurate and reliable follow-up information	0.836				
AUI_12	We can easily obtain information when required from the principal	0.841				
AUI_13	The principal gives the correct information	0.849				
Build Trust and Respect (BTR)			69.748	0.855	0.697	0.901
BTR_14	Our trust is not violated by the principal	0.809				
BTR_16	The principal focuses on addressing our grievances and problems	0.816				
BTR_22	Principal Values the Exemplary Behaviors of Others	0.874				
BTR_26	Our talents are publicly appreciated by the principal	0.839				
Inclusive, Patient, and concerned for others (IPC)			75.908	0.841	0.759	0.904
IPC_15	The principal is a patient person	0.498				
IPC_17	The principal cares about each individual	0.852				
IPC_18	The principle creates equality among all	0.851				
IPC_19	The principal focuses on each person	0.910				
Resourcefulness (RF)			87.540	0.857	0.876	0.933
RF_20	The principal provides resources when required to perform the task	0.936				
RF_21	The principal provides the necessary resources to carry out our duties and provides continuous supervision and encouragement to do the tasks	0.936				
Innovative (INN)			83.213	0.898	0.832	0.936

continued -

- continued from page 151

INN_23	The principal likes to learn new things	0.883				
INN_24	The principal appreciates others' new ideas	0.928				
INN_25	The principal implements those new ideas	0.925				
Stimulate Environment for Performance (SEP)			77.788	0.857	0.777	0.913
SEP_27	The principal creates a conducive environment for learning	0.885				
SEP_28	The Principal encourages teachers to maintain the standard of behavior for teachers	0.878				
SEP_29	The principal maintains good relationships with teachers and parents	0.883				
School Performance Academic Performance (AP)			80.830	0.960	0.809	0.967
AP_30	The principal understands the school's mission statement	0.868				
AP_31	The principal performs according to the mission statement of the school	0.899				
AP_32	The principal focuses on improving academic performance	0.946				
AP_33	The principal performs to improve the academic performance	0.907				
AP_34	The principal encourages teachers to improve academic performance	0.934				
AP_35	The principal encourages teachers to conduct additional classes in the evening after school to enhance academic performance	0.884				
AP_36	The principal facilitates to conduct of seminars, workshops, and programs	0.854				
Nonacademic performance- Aesthetic (NPA)			82.845	0.896	0.828	0.935
NPA_37	The principal facilitates to conduct of seminars, workshops, and programs for extracurricular activities (leadership training, psychology counseling programs)	0.911				
NPA_38	The principal works to encourage students in art-related activities	0.927				
NPA_40	The principal encourages all students to participate in extracurricular activities (Scout, Cadet, Student Union, etc.)	0.892				
Wellbeing of Students (WS)			84.663	0.909	0.846	0.943
WS_41	The principal works to create positive attitudes in the school	0.885				
WS_42	The principal is trying to create a drug-free environment in the school	0.934				
WS_43	The principal is trying to create an environment that is free of misconduct within the school	0.940				

Source: Field data

Table 3: Pearson Product- Moment Correlation Matrix for variables

		School performance	PPI	BOB	EC	AUI	BTR	IPC	RF	INN	SEP
School performance	Pearson Correlation	1									
	Sig. (2-tailed)	-									
	N	357									
PPI	Pearson Correlation	.735**	1								
	Sig. (2-tailed)	.000	-								
	N	357	357								
BOB	Pearson Correlation	.839**	.744**	1							
	Sig. (2-tailed)	.000	.000	-							
	N	357	357	357							
EC	Pearson Correlation	.583**	.651**	.570**	1						
	Sig. (2-tailed)	.000	.000	.000	-						
	N	357	357	357	357						
AUI	Pearson Correlation	.586**	.702**	.581**	.693**	1					
	Sig. (2-tailed)	.000	.000	.000	.000	-					
	N	357	357	357	357	357					
BTR	Pearson Correlation	.733**	.744**	.635**	.682**	.752**	1				
	Sig. (2-tailed)	.000	.000	.000	.000	.000	-				
	N	357	357	357	357	357	357				
IPC	Pearson Correlation	.708**	.704**	.601**	.584**	.661**	.714**	1			
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	-			
	N	357	357	357	357	357	357	357			
RF	Pearson Correlation	.752**	.726**	.657**	.574**	.624**	.733**	.713**	1		
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	-		
	N	357	357	357	357	357	357	357	357		
INN	Pearson Correlation	.756**	.693**	.678**	.573**	.582**	.787**	.693**	.735**	1	
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	-	
	N	357	357	357	357	357	357	357	357	357	
SEP	Pearson Correlation	.823**	.710**	.756**	.574**	.617**	.748**	.754**	.729**	.760**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	-
	N	357	357	357	357	357	357	357	357	357	357

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

PPI - Participative Planning and Implementation, BOB - Bring Out the Best, EC - Effective Communication, AUI - Access to Updated Information, BTR - Build Trust and Respect IPC - Inclusive, Patient and concern for others, RF – Resourcefulness, INN – Innovative, SEP - Stimulate Environment for Performance

Table 4: Regression test results

Predictor	Standardized Regression coefficient	T- Value	Significance
Bring Out the Best	.435	11.918	.000
Inclusive, Patient and Concerned for others	.232	5.087	.000
Resourcefulness	.153	3.969	.000
Innovative	.115	2.897	.004
Stimulate Environment for Performance	.084	2.215	.027
Constant		2.402	.017
R	.904[e]		
R^2	.817		
Adjusted R Square	.814		
F	312.534		

*p<0.05, **p<0.01, ***p<0.001

evaluate the variables reflecting the extent of agreement level from low to high. This scale has five levels of agreement : 1for strongly disagree, 2 for disagree, 3 for neutral, 4 for agree, and 5 for strongly agree. These values representing all respondent are higher than 3 (neutral level) representing the " agreed level".

Characteristics of effective leadership

The Independent variable of the study is Effective Leadership, which is measured by nine (09) sub-variables namely, participative planning and implementation, bringing out the best, effective communication, and access to updated information, building trust and respect, inclusive patience, and concern for others, resourcefulness, innovation and stimulating the environment for performance (Cooper & Nirenberg, 2012).

A five-point Likert scale was used to allow the teachers to express how much they agree or disagree with a particular statement. The mean values of the nine sub-variables of effective leadership (the independent variable of the study) are indicated here. According to the mean values of participative planning and implementation, the principal brings out the best, enables effective communication, provides access to updated information, builds trust and respect, inclusive patience and concern for others, resourcefulness, innovation, creating stimulation for the environment for the performance of their teachers, are respectively 3.6, 4.2,3.7, 3.7, 3.8, 3.6, 3.7, 3.8, 3.8.

Reliability and validity of measures

All the variables were selected based on a comprehensive literature review to ensure face validity. Content validity was ensured by including all dimensions of the variables. Factor analysis was conducted to ensure Construct Validity (convergent and discriminant validity).

To ensure the reliability of the measures, a reliability test was conducted. An alpha level of 0.7 or above is considered acceptable (Cronbatch, 1951, cited in Karunasena & Deng, 2012). Construct reliability between 0.6 and 0.7 is acceptable (Hair *et al.*, 2014). All the reliability coefficient values of the variables in this study had values higher than 0.7 ensuring the reliability of the items.

Correlation analysis

According to the Correlation analysis, the dependent variable, School performance is positively correlated with all dimensions of effective leadership at the significant level of $p < 0.01$.

Regression analysis

The study used 'Stepwise Regression' for the analysis. Even though there is a significant correlation between each independent variable and dependent variable, there is a high correlation among some independent variables. Stepwise regression analysis excludes some independent variables having high correlations with each other. Other variables have no multi-collinearity issue as the value of tolerance is greater than 0.

The regression coefficients shown are standardized coefficients.

According to Table 4, five independent variables namely, 'bringing out the best, 'inclusive and concern for others, 'resourcefulness', 'being innovative' and 'stimulating environment" are statistically significant with the dependent variable of School Performance. These five variables of effective leadership explained 81.4% variance of the dependent variable of School Performance. Other dimensions of effective leadership did not significantly affect school performance.

DISCUSSION

There are similar findings brought to light by various scholars in their previous studies, as discussed below.

Bringing out the best

Cooper & Nirenberg (2012) pointed out that leadership performance is essentially a practice of a set of values that helps people focus on their contributions and deliver the best. Garza *et al.* (2014) support that principals express their views openly about education and help their schools put them in the right places. Cemaloglu (2011) argued that because of the good practices of principals such as inspiration, which is seen in the leaders of change, the good health of the organisation takes place in educational institutions. Schools in which students' achievements are led by principals who make a significant and measurable contribution to the teaching and learning practices (Andrew & Soder, 1987; Bossert *et al.*, 1982, Murphy & Hallinger, 1992, cited in Sharma, 2011). The better a principal can prioritize the things that have to be done, the better they can focus their efforts on the things that matter to their students and faculty most (Castillo, 2019). Successful principals see the greatness in others and do what they can to bring that greatness out of them (Castillo, 2019). Effective principals are reliably mindful of best practices while instructing and encouraging the teaching staff to adopt these learning techniques in the classroom (Whitaker, 2012).

Inclusiveness and concern for others

Cooper & Nirenberg (2012) revealed, that "being inclusive and showing concern for each person" is a fundamental practice of leadership effectiveness. Muchiri *et al.* (2011) identified such effective leadership as one that emphasizes justice, equity, honesty, and employee development. Wang *et al.* (2016) highlighted that principals were successful in improving school capacity through redesigning school structures, particularly those that facilitate improvement in the work of teachers. The principals in these schools demonstrated the ability to care for others through words and deeds and the willingness to listen to the different views and to empathize with them (Wang *et al.*, 2016). True effective leadership emerges when one's primary motivation is to help others (Hughes *et al*., 2010). When the effective principal listens to the teachers, the best teachers feel that they have a voice. If the principal is not an empathic listener, teachers will not share ideas and strategies during meetings (Freeman & Randolph, 2013). Spiro revealed (2013) that "Within a school, teachers will feel safe and valued under the wing of an effective principal".

Resourcefulness

Urick (2016) found that principals should have the same significant impact on resources, security, and resources regardless of how much teaching is shared because these responsibilities consider the needs of the school. Fullan (2002, cited in Sharma, 2011) also suggested that at the heart of school capacity are principals emphasising the development of teachers' knowledge and skills, professional community, program coherence, and technical resources. Effective leaders can obtain the cooperation of other people and harness the resources provided by that cooperation to attain organisational goals (May-Vollmar & Kelly, 2017). Effective educational leaders recognize that investing in the professional development of the staff is good for achievement and will cause to the best practices of teachers (Mendels & Mitgang, 2013). Essentially, money will be put toward resources that will help a school to improve weaknesses or help staff and students to reach collective goals (Klar & Brewer 2013). "Pursuing student progress and controlling monetary funds to address weaknesses are other indicators of an effective leader" (Barkman, 2015).

Innovativeness

Garza *et al.* (2014) revealed that all principals are teaching leaders who have contributed to teaching and learning and are committed to making a difference. Wang *et al.* (2016) highlighted that principals should demonstrate initiative and creativity, and be resilient. Koech & Namusonge (2012) revealed that leaders should stimulate subordinate efforts to become more innovative and creative. According to Whitaker (2012), effective principals are creative and always try something new. Also, principals adapt well to constant change.

Stimulating environment for performance

Some research confirms that environmental stimulation for others has significant effects on school performance. "Creating an environment that stimulates extraordinary performance" is a fundamental practice of leadership effectiveness (Cooper & Nirenberg, 2012). Huguet (2017) found that effective leadership creates a school environment conducive to academic success. Teachers seem to be to be more satisfied when they have greater control over classrooms and when they receive effective support and guidance from the principals (Tillman & Tillman, 2008; Hulpia *et al.*, 2009, cited in Dutta & Sahney, 2016). Every effective principal must have strong interpersonal skills and focus on developing relationships (Barkman, 2015). "Good principals try to redesign the organisation through building relations with families and connecting the school to the community" (Klar & Brewer, 2013). The importance of integrating 21st century skills systematically in the curriculum to achieve educational objectives and provide a supportive environment for creativity and innovations (Shalabi, 2014).

RECOMMENDATIONS

Based on the findings, the following recommendations could be proposed to improve the performances of Central Colleges: School performance is directly affected by effective school leadership.

School principals should be able to bring out the best results

School principals should encourage their teachers to get the best results and develop schools' reputations and resources. For that, principals should encourage teachers to do extra classes before or after school time and develop the school's reputation and resources of the school. To develop the school's reputation, principals should encourage students to participate in sports activities and aesthetic competitions at both local and international levels and encourage students to win those competitions.

The school principal should be inclusive and have concern for others

School principals must care about each individual and try to create equality among all teachers, students, and non-academic staff of their schools. Further, school principals should focus on each person by addressing their grievances and problems. The principal must allow teachers to express their ideas and reward their achievements.

The principal should be resourceful

The principal should be able to provide resources when required to perform the task and continuous supervision and encouragement to do tasks. By doing such, the principal can get teachers' contribution in achieving the objectives of the school. Meanwhile, school principals should develop the human and physical resources of the school. That means they should try to develop physical infrastructure such as new classrooms, laboratory facilities, playground facilities, IT lab facilities, etc. For that, principals can get the support of the school alumni association. Furthermore, principals should be able to identify the shortage of teachers and be able to take necessary actions.

The principal should be an innovative person

School principals should be innovative people and should always try to learn new things and appreciate others' new ideas. They should also be able to implement those ideas.

The principal should create a stimulating environment

A school should have a stimulating environment for performances. Principals must create a conducive environment for learning and encourage teachers to maintain the standard of behaviour for others. Further, the principal should maintain a good relationship with teachers and parents and a proper relationship with the school alumni association.

CONCLUSION

The focus of this study was to examine the impact of effective leadership style on the school performance of Central Colleges. The most effective leaders have several characteristics of the transformational leadership style, which leads to higher school performance. Effective school leadership is directly affected by school performance. Effective leadership characteristics are; bringing out the best, being inclusive, having concern for others, resourcefulness, being innovative, and being able to stimulate the environment for performance. These characteristics significantly affect School Performance and explain the 81.4% variance of the dependent variable of School Performance.

The research has certain limitations. This study was carried out covering only the Central Colleges in the Western Province. Therefore, future studies could be conducted by covering all Central Colleges in the other Provinces. Further, this study covered only a smaller sample. Hence, further studies could be carried out by covering a larger sample to better understand leadership and School performance.

ACKNOWLEDGMENT

This research has been funded by research grants from the University of Sri Jayewardenepura, Sri Lanka.

REFERENCES

Alhothali, H. M. (2021) Inclusion of 21st century skills in teacher preparation programs in the light of global expertise, *International Journal of Education and Practice*, 9(1), pp: 105-127.

DOI: https://doi.org/10.18488/journal.61.2021.91.105.127

Amanchukwu, R. N., Stanley, G. J. & Ololube, N. P. (2015) A review of leadership theories, principles and styles and their relevance to educational management, *Management*, 5(1), pp: 6-14.

Barkman, C. (2015) The Characteristics of an Effective School Leader, *BU Journal of Graduate Studies in Education,* 7(1), pp: 14-18.

Blase, J. J., Dedrick, C. & Strathe, M. (1986) Leadership behavior of school principals in relation to teacher stress, satisfaction, and performance, *Journal of Humanistic Counseling, Education & Development,* 24(4), pp: 159-171.

DOI:https://doi.org/10.1002/j.2164-4683.1986.tb00290.x

Brinia, V. & Papantoniou, E. (2016) High school principals as leaders: Styles and sources of power, *International Journal of Educational Management*, 30(4).

DOI: https://doi.org/10.1108/IJEM-03-2015-0035

Burke, P. J. (1989) Gender identity, sex, and school performance, *Social Psychology Quarterly*, 52(2), pp: 159-169.

DOI: https://doi.org/10.2307/2786915

Casimir, G., Waldman, D. A., Bartram, T. & Yang, S. (2006) Trust and the relationship between leadership and follower performance: Opening the black box in Australia and China, *Journal of Leadership & Organizational Studies,* 12(3), pp: 68-84.

DOI: https://doi.org/10.1177/107179190601200305

Castillo, R. (2019) Top 10 Qualities of a Good School Principal, *PikMyKid.* [online] Available from: https://www.pikmykid.com/top-10-skills-every-school-principal-must-have/ [Accessed: 24th May 2023].

Cemaloglu, N. (2011) Primary principals' leadership styles, school organizational health, and workplace bullying, *Journal of Educational Administration*, 49 (5), pp: 495-512.

DOI:https://doi.org/10.1108/09578231111159511

Central Bank of Sri Lanka (2020) Key Social Indicators, *Annual Report 2019*, Colombo. [online] Available from:https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/annual_report/2020/en/4_KSI.pdf [Accessed: 21st April 2023].

Centre for Education Statistics and Evaluation (2015) Effective Leadership, NSW Department of Education. [online] Available from:https://education.nsw.gov.au/about-us/educational-data/cese/publications/research-reports/effective-leadership [Accessed: 21st April 2023].

Cherry, K. (2020) Transformational Leadership, *Verywell Mind.* [online] Available from: https://www.verywellmind.com/what-is-transformational-leadership-2795313 [Accessed: 5th January 2023].

Cooper, J. F. & Nirenberg, J. (2012) *Encyclopedia of leadership edition,* Leadership Effectiveness, Sage, CA: Thousand Oaks.

Council of Europe (2022) *Improving well-being at school.* [online] Available from: https://www.coe.int/en/web/campaign-free-to-speak-safe-to-learn/improving-well-being-at-school [Accessed: 24th May 2023].

Coventry University (2022) *The relationship between power and leadership.* [online] Available from: https://www.futurelearn.com/info/courses/the-evolution-of-management-and-leadership-theory-sc/0/steps/184683 [Accessed: 16th March 2023].

Densten, I. L. (2006) Negotiating extra effort through contingent rewards, *Leadership & Organization Development Journal*, 27(1), pp: 38-49.

DOI: https://doi.org/10.1108/01437730610641359

Dutta, V. & Sahney, S. (2016) School leadership and its impact on student achievement: The mediating role of school climate and teacher job satisfaction, *International Journal of Educational Management,* 30(6), pp: 941-958.

DOI:https://doi.org/10.1108/IJEM-12-2014-0170

Ehrich, L. C., Harris, J., Klenowski, V., Smeed, J. & Spina, N. (2015) The centrality of ethical leadership, *Journal of Educational Administration,* 53 (2), pp: 197-214.

DOI: https://doi.org/10.1108/JEA-10-2013-0110

Fernando, C. (2001) *The rise and fall of the Central Colleges:A cursory glance.* [online] Available from: http://www.infolanka.com/org/srilanka/hist/35.html [Accessed: 21st November 2021].

Fernando, R. L. S., Geethamali, H. D. M. K. & Kularathna, E. A. I. (2020) Leadership and School Performance in *Central Colleges* in the Western Province of Sri Lanka: An Exploratory Study, *International Journal of Learning and Teaching*, 6(2), pp: 111-118.

DOI: https://doi.org/10.18178/ijlt.6.2.111-118

Freeman, G. G. & Randolph, I. (2013) Leadership strategies for maintaining success in a rural school district, *International Journal for Leadership in Learning,* 1(1), pp: 7-11.

Garza, E. Jr., Drysdale, L., Gurr, D., Jacobson, S. & Merchant, B. (2014) Leadership for school success: lessons from effective principals, *International Journal of Educational Management*, 28(7), pp: 798-811.

DOI:https://doi.org/10.1108/IJEM-08-2013-0125

Griffith, J. (2004) Relation of principal transformational leadership to school staff job satisfaction, staff turnover, and school performance, *Journal of Educational Administration,* 42(3), pp: 333-356.

DOI:https://doi.org/10.1108/09578230410534667

Hair, J. F., Black,W. C., Babin,B. J. & Anderson, R. E. (2014) *Multivariate data analysis: Pearson new international edition,* 1(2), Essex: Pearson Education Limited.

Hallinger, P. & Heck, R. H. (1996) Reassessing the principal's role in school effectiveness: A review of empirical research 1980-1995, *Educational Administration Quarterly*, 32(1), pp: 5-44.

DOI: https://doi.org/10.1177/0013161X96032001002

Hallinger, P. & Heck, R. H. (1998) Exploring the principal's contribution to school effectiveness 1980-1995, *School Effectiveness and School Improvement*, 9(2), pp: 157-191.

DOI: https://doi.org/10.1080/0924345980090203

Heck, R. H. (1992) Principals' instructional leadership and school performance: Implications for policy development, *Educational Evaluation and Policy Analysis*, 14(1), pp: 21-34.

DOI: https://doi.org/10.3102/01623737014001021

Huber, S. G. (2004) School leadership and leadership development: Adjusting leadership theories and development programs to values and the core purpose of school, *Journal of Educational Administration*, 42(6), pp: 669-684.

DOI: https://doi.org/10.1108/09578230410563665

Hughes, L. W., Avey, J. B. & Nixon, D. R. (2010) Relationships between leadership and followers'quitting intentions and job search behaviors, *Journal of Leadership & Organizational Studies,* 17(4), pp: 351-362.

DOI: https://doi.org/10.1177/1548051809358698

Huguet, B. C. (2017) Effective leadership can positively impact school performance, *On the Horizon*, 25(2), pp: 96-102.

DOI: https://doi.org/10.1108/OTH-07-2016-0044

Jaques, E. (2017) *Requisite Organization: A Total System for Effective Managerial Organization and Managerial Leadership for the 21st Century*, London: Routledge.

DOI: https://doi.org/10.4324/9781315088846

Kaleem, S., Din, M. U. & Rehman, A. U. (2021) Impact of Principals' Leadership Style On Schools' Climate, Teachers' Performance and Academic Achievement of the Students in Southern Districts of Khyber Pakhtunkhwa, *Ilkogretim Online - Elementary Education,* 20(6), pp: 518-527.

Karunasena, K. & Deng, H. (2012) Critical factors for evaluating the public value of e-government in Sri Lanka, *Government Information Quarterly*, 29(1), pp: 76-84.

DOI: https://doi.org/10.1016/j.giq.2011.04.005

Klar, H. W. & Brewer, C. A. (2013) Successful leadership in high-needs schools: An examination of core leadership practices enacted in challenging contexts, *Educational Administration Quarterly*, 49(5), pp: 768-808.

DOI:https://doi.org/10.1177/0013161X13482577

Koech, P. M. & Namusonge, G. S. (2012) The Effect of Leadership Styles on Organizational Performance at State Corporations in Kenya, *International Journal of Business and Commerce*, 12(01), pp: 01-12.

Koh, W. L., Steers, R. M. & Terborg, J. R. (1995) The effects of transformational leadership on teacher attitudes and student performance in Singapore, *Journal of Organizational Behavior,* 16(4), pp:319-333.

DOI:https://doi.org/10.1002/job.4030160404

Kramer, L. (2020) 5 Different Types of Leadership Styles*, Chron.* [online] Available from: https://smallbusiness.chron.com/management-styles-techniques-78335.html [Accessed: 11th January 2023].

Kruse, K. (2013) What Is Leadership?*, Forbes.* [online] Available from:https://www.forbes.com/sites/kevinkruse/2013/04/09/what-is-leadership/?sh=1a4ecabd5b90 [Accessed: 20th May 2023].

Kythreotis, A., Pashiardis, P. & Kyriakides, L. (2010) The influence of school leadership styles and culture on students' achievements in Cyprus primary schools, *Journal of Educational Administration,* 48(2), pp: 218-240.

DOI: https://doi.org/10.1108/09578231011027860

Leithwood, K. & Jantzi, D. (1990) Transformational leadership: How principals can help reform school cultures, *School Effectiveness and School Improvement,* 1(4), pp: 249-280.

DOI: https://doi.org/10.1080/0924345900010402

Leithwood, K. & Jantzi, D. (1999) Transformational school leadership effects:A replication, *School Effectiveness and School Improvement*, 10(4), pp: 451-479.

DOI: https://doi.org/10.1076/sesi.10.4.451.3495

Leithwood, K., Mascall, B. & Strauss, T. (2010) *Distributed Leadership According to the Evidence,* Routledge: London.

DOI:https://doi.org/10.4324/9780203868539

Litz, D., Juma, Q. A. & Carroll, K. S. (2016) School leadership styles among educators in Abu Dhabi, *International Journal of Comparative Education and Development,* 18(02), pp: 81-99.

DOI: https://doi.org/10.1108/IJCED-11-2015-0010

Lunenburg, F. C. & Ornstein, A. (2021) *Educational Administration: Concepts and Practices,* Thousand Oaks, CA: SAGE Publications.

Lunenburg, F. C. (2012) Power and Leadership: An Influence Process, *International Journal of Management, Business, and Administration*, 15(1), pp: 1-9.

May-Vollmar, K. (2017) *Preparing Tomorrow's Administrators: A Quantitative Correlation Study of the Relationship Between Emotional Intelligence and Effective Leadership Practices,* Doctoral dissertation, University of La Verne.

Mendels, P. & Mitgang, L. D. (2013) Creating Strong Principals, *Educational Leadership,* 70(7), pp: 22-29.

Moorhead, G. & Griffin, R. W. (2012) *Managing Organizational Behavior,* South-Western Cengage Learning: UK.

Muchiri, M. K., Cooksey, R.W., Milia, L.V. & Walumbwa, F.O. (2011) Gender and managerial level differences in perceptions of effective leadership, *Leadership & Organization Development Journal*, 32(05), pp: 462-492.

DOI: https://doi.org/10.1108/01437731111146578

Muijs, D. (2011) Leadership and organizational performance: from research to prescription?, *International Journal of Educational Management,* 25(1), pp: 45-60.

DOI: https://doi.org/10.1108/09513541111100116

Nir, A. E. & Hameiri, L. (2014) School principals' leadership style and school outcomes: The mediating effect of powerbase utilization, *Journal of Educational Administration,* 52(2), pp: 210-227.

DOI: https://doi.org/10.1108/JEA-01-2013-0007

Ogawa, R. T. & Scribner, S. P. (2002) Leadership: Spanning the Technical and Institutional Dimensions of Organisations, *Journal of Educational Administration,* 40(6), pp: 576-588.

DOI: https://doi.org/10.1108/09578230210446054

Okpozo, A. Z., Gong, T., Ennis, M. C. & Adenuga, B. (2017) Investigating the impact of ethical leadership on aspects of burnout, *Leadership and Organisation Development Journal,* 38(8), pp: 1128-1143.

DOI: https://doi.org/10.1108/LODJ-09-2016-0224

Omar, A. M. & Kavale, S. (2016) Effect of Leadership Style on School Performance of the Secondary Schools in Wadajir District, Mogadishu, Somalia, *IJRDO-Journal of Applied Management Science,* 2(5), pp: 52-70.

Pardosi, J. & Utari, T. I. (2021) Effective principal leadership behaviors to improve the teacher performance and the student achievement, *F1000Research,* 10, p. 465.

DOI: https://doi.org/10.12688/f1000research.51549.2

Parveen, K., Quang, B. T. P., Kumar, T. & Shah, A. H. (2022) Impact of Principal Leadership Styles on Teacher Job Performance: An Empirical Investigation, *Frontiers in Education,* 7, p. 814159.

DOI: https://doi.org/10.3389/feduc.2022.814159

Pina, R., Cabral, I. & Alves, J.M. (2015) Principal's leadership on students' outcomes, *Procedia-Social and behavioral sciences, Athens, Novotel Athens Convention Center,* pp. 949-954.

DOI: https://doi.org/10.1016/j.sbspro.2015.07.279

Pont, B., Nusche, D. & Moorman, H. (2008) *Improving school leadership. Policy and practice.* [online] Available from: https://www.oecd-ilibrary.org/education/improving-school-leadership_9789264044715-en [Accessed: 13th January 2023].

Preliminary interviews with principals of the Central Colleges in the Western Province (2020). Sri Lanka.

Pushpakumara, M. (2016) A critical study on the effect of instructional leadership of principals on implementation of 5E teaching model in secondary schools, *Education Perspectives*.

Rothstein, R. (2000) Toward a composite index of school performance, *The Elementary School Journal*, 100(05), pp: 409-441.

DOI: https://doi.org/10.1086/499649

Rumberger, R. W. & Palardy, G. J. (2005) Test Scores, Dropout Rates, and Transfer Rates as Alternative Indicators of High School Performance, *American Educational Research Journal,* 42(1), pp: 3-42.

DOI: https://doi.org/10.3102/00028312042001003

Sarros, J. C., Cooper, B. K. & Santora, J. C. (2008) Building a Climate for Innovation Through Transformational Leadership and Organizational Culture, *Journal of Leadership & Organizational Studies*, 15(2), pp: 145-158.

DOI: https://doi.org/10.1177/1548051808324100

Sarwar, U, Tariq, R. & Yong, Q. Z. (2022) Principals' leadership styles and its impact on teachers' performance at college level, *Frontiers in Psychology,* 13, p. 919693.

DOI: https://doi.org/10.3389/fpsyg.2022.919693

Shalabi, N. (2014) A proposal for the integration of 21st skills in basic education science curricula in Egypt, *International Interdisciplinary Journal of Education*, 3(10), pp: 1-19.

Sharma, S. (2011) *Attributes of school principals-leadership qualities & capacities.* [online] Available from: https://core.ac.uk/download/pdf/162013883.pdf [Accessed: 15th February 2023].

Sornberger, D. (2023) 10 Breakthrough Leadership Trends Shaping Education in 2023, Educational Leadership, Leadership Trends. [online] Available from: https://leadinglearninglab.com/10-breakthrough-leadership-trends-shaping-education-in-2023/, [Accessed:16th November 2023].

Spiro, J. D. (2013) Effective principals in action, *Phi Delta Kappan,* 94(8), pp: 27-31.

DOI:https://doi.org/10.1177/003172171309400807

Sri Lanka, Ministry of Education (2018) *School Census Report-2017.* [online] Ministry of Education, Battaramulla, pp: 1–77, Available from: https://moe.gov.lk/wp-content/uploads/2020/06/School-Census-Report-2017.pdf, [Accessed:16th November 2023].

Sri Lanka, Ministry of Education (2019) Annual School Census of Sri Lanka Final Report-2019. [online] Available from: http://www.statistics.gov.lk/Education/StaticalInformation/SchoolCensus/2019, [Accessed: 21st February 2023].

Sri Lanka, Western Provincial Educational Department (2017) *G.C.E O/L 2016- Results analysis for Provincial and National Schools*.

Tedla, B. A., Redda, E. H. & Vilas B. G. (2021) Leadership Styles and School Performance: A Study within an Eritrean Context of Eastern Africa, *International Journal of Management (IJM)*, 12(4), pp: 56-73.

DOI: https://doi.org/10.34218/IJM.12.4.2021.007..

Timothy, O. C., Okwu, A. T., Akpa, V.O. & Nwankwere, I. A. (2011) Effects of leadership style on organisational performance: a survey of selected small scale enterprises in Ikosi-Ketu development area of Lagos State, Nigeria, *Australian Journal of Business and Management Research*, 1, pp: 100-110. [online] Available Accessed: 15th March 2023

Urick, A. (2016) Examining US principal perception of multiple leadership styles used to practice shared instructional leadership, *Journal of Educational Administration*, 54(2), pp: 152-172.

DOI:https://doi.org/10.1108/JEA-07-2014-0088

Villanova University (2020) *What is Ethical Leadership?.* [online] Available from: https://www.villanovau.com/resources/leadership/what-is-ethical-leadership/, [Accessed: 20th August 2023].

Wahab, S., Rahmat, A., Yosuf, M. S. & Mohamed, B. (2015) Organisational Performance and Leadership Styles: Issues in Education Service, *Procedia- Social and Behavioral Science*, 224(2016), pp: 593-598.

DOI:https://doi.org/10.1016/j.sbspro.2016.05.447

Walumbwa, F., Avolio, B., Gardner, W., Wernsing, T. & Peterson, S. (2008) Authentic Leadership: Development and Validation of a Theory-Based Measure, *Journal of Management*, 34(1), pp: 89-126.

DOI: https://doi.org/10.1177/0149206307308913

Wang, L. H., Gurr, D. & Drysdale, L. (2016) Successful school leadership: case studies of four Singapore primary schools, *Journal of Educational Administration*, 54(3), pp: 270-287.

DOI: https://doi.org/10.1108/JEA-03-2015-0022

Whitaker, T. (2012) *What great principals do differently: 18 things that matter most* (2nd ed.), Larchmont, NY: Eye on Education.

Witziers, B., Bosker, R. J. & Kruger, M. L. (2003) Educational leadership and student achievement: The elusive search for an association, *Educational Administration Quarterly.* 39(3), pp: 398–425.

DOI: https://doi.org/10.1177/0013161X03253411

Yang, Y. (2014) Principals' transformational leadership in school improvement, *International Journal of Educational Management*, 28(3), pp: 279-288.

DOI: https://doi.org/10.1108/IJEM-04-2013-0063

Yukl, G. & Mahsud, R. (2010) Why flexible and adaptive leadership is essential, *Consulting Psychology Journal: Practice and Research*, 62(2), pp. 81-93.

DOI:https://doi.org/10.1037/a0019835

Sri Lanka Journal of Social Sciences 2023 46 (2): 177-196
DOI: https://doi.org/10.4038/sljss.v46i02.8574

RESEARCH ARTICLE

Strengthening technology and knowledge transfer from Sri Lankan universities by the establishment of University Business Linkage Cells

Thusitha Abeytunga[1*], Harsha Aturupane[2], Nalaka Madhusanka[1], P. A. M. Liyanage[1] and N. G. Cooray[1]

[1] *Accelerating Higher Education Expansion and Development (AHEAD) Operation, Ministry of Education, Sri Lanka.*
[2] *The World Bank.*

Abstract: The Accelerating Higher Education Expansion and Development (AHEAD) operation tested the Triple Helix model, which provides the theoretical framework for the development of Technology Transfer Offices (TTO) in 15 state universities in Sri Lanka. These TTOs are referred to as University Business Linkage (UBL) cells. The development followed a scorecard in which the actions were divided into 4 different phases. The allocated funds were released in tranches after successful completion of each phase. The interests of the other international development partners, trade chambers and associations were also integrated into the central planning. Freedom was granted to develop the IP policy of the universities based on the World Intellectual Property Organization's (WIPO) Intellectual Property (IP) policy template. It was noted that all universities allocated 50-80% of the revenue from the commercialisation to the inventors. The number of Invention Disclosure Forms submitted to UBLs varied from 12-79 in 15 different UBLs from 2019-2023. A total of 228 patent applications were submitted to the National Intellectual Property Office (NIPO), a total of 124 other forms of IP were filed and 21 Patent Cooperation Treaty (PCT) applications were filed at WIPO by the 15 UBLs. The total number of university-industry collaborative research agreements and license agreements signed through the UBLs was 95 and 77 respectively, within the first 5 years of development. The total number of products on the market was 42. The overall satisfaction survey was conducted at the baseline, mid-term and final stages for all stakeholders. The percentage UBL directors in the highly satisfied category vary from 20%, 66% and 94% respectively.

Keywords: University-industry linkage, technology transfer, innovation, commercialisation, intellectual property.

INTRODUCTION AND LITERATURE REVIEW

Research is for the public good that generates a wide and varied range of economic and social benefits. These include knowledge creation, new discoveries and inventions, international knowledge exchanges, and the rapid acquisition and transmission of new ideas (Aturupane, 2016).

In the twenty-first century, countries actively seek to promote research and innovation to increase economic growth and development (Altbach, 2015; Gareth *et al*., 2021; Jose *et al*., 2013; OECD, 2019; Ramli *et al*., 2013). Universities engage in research and innovation activities that directly contribute to economic development are increasingly important in advanced and upper-middle-income countries (Elsevier, 2020; Mgonja; 2017; Guimon, 2013).

As described by Carlsson *et al*. (2007), there are two types of research, namely academic and industrial. Most of such research has no direct economic value as depicted as a cloud in the middle of Figure 1. As illustrated in the bottom part of Figure 1, industrial R & D which passes the economic filter will be patented if it is relevant and commercialised via 3 mechanisms. The author illustrates that there are two types of outputs from academic research. First the graduates will take the skills to the educated labour market and the other is illustrated with the purple arrow which begins with

* Corresponding author (thusitha@chem.cmb.ac.lk; https://orcid.org/0000-0001-5934-9598)

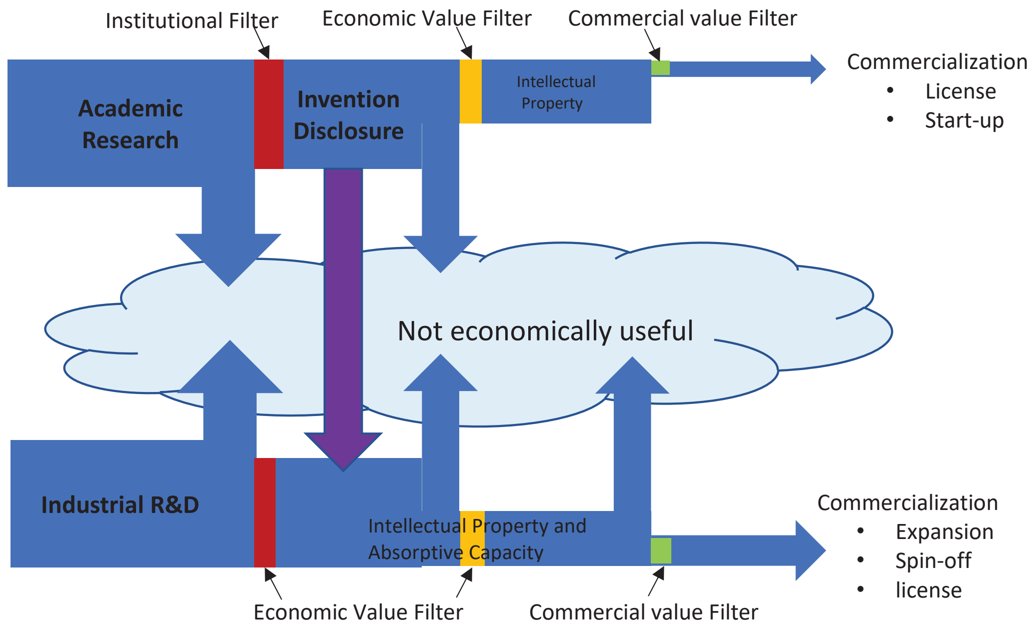


Figure 1: Knowledge filter model of university-industry commercialisation processes
Source: Carlsson *et al.* (2007)

an invention disclosure. The human factor associated with the institutional filter highlighted in red has been discussed in the literature (Tijssen *et al*., 2017). The role of academics with prior industry exposure will have a crucial role to play in the filters identified in Figure 1.

Staff-mobility between University and Industry

Staff mobility between the university and industry at various levels is illustrated in Figure 2. Such engagements enhance collaborative learning leading to the formation of joint human resources (Lam, 2007). The base of the triangle in Figure 2 can be extended to a much broader base by adding the undergraduates in Sri Lankan university setting. A larger number of mobility can be seen as many universities have internship placements for undergraduates in industries.

The practical problems from industry will stimulate the academic mind providing practical insight to a theoretical setting (Christopher, 2017) and expose them to the necessary skills in an industry environment. Further the Industry will have a competitive edge over other industries as they can capitalise on academic research findings.

The conceptual framework: Triple Helix model

The Triple Helix model provides a framework to conceptualize the roles of three agents; government, universities, and industries; in generating innovations and developing them into commercial products. Traditionally universities engaged in fundamental research. Industries produced goods and services for consumers. Governments sought to regulate and supplement markets. In the context of innovation, however, these three types of agencies interact in such a way that each agency takes on some of the characteristics of the other two agencies (Figure 3). These hybrid characteristics are described as the Triple-Helix model (Etzkowitz, 2003). As an example, government can take a leading role in creating innovative ecosystems through developing the National Intellectual Property Office, funding applied research in universities, and facilitating technology and knowledge transfer from universities to industries. Universities can proceed beyond basic research through patenting and licensing innovations. Industries can advance the level of technology in their products by working interactively with universities. The development of Silicon Valley is considered one of the best examples of the Triple Helix model. A recent discussion of the promotion of research and innovation commercialisation in Sri Lanka,_along the lines of the Triple-Helix model, is given in Aturupane *et al.* (2022) Chapter 5.

Universities need to create mechanisms, such as Technology Transfer Offices (TTOs), to help academics and researchers contribute directly to commercial development through their inventions.These TTOs do not

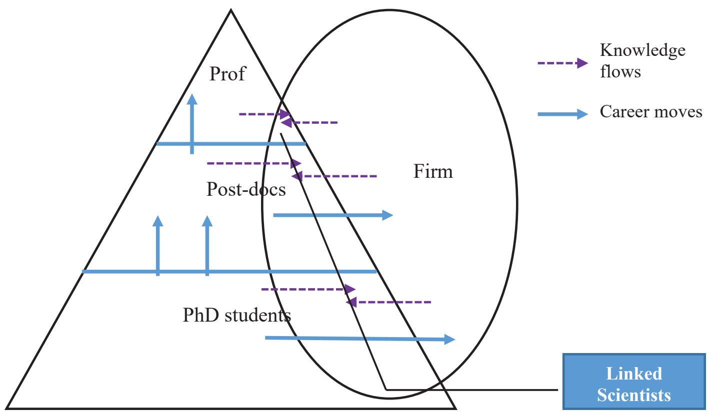


Figure 2: University-industry interactions: collaboration, knowledge flows, human resource mobility, and academic careers
Source: Tijssen, R. *et al.* (2017)

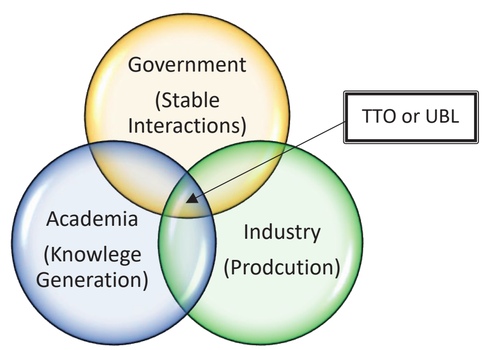


Figure 3: The Triple Helix system; the Technology Transfer Office (TTO) or the University Business Linkage (UBL) Cell connecting the players of the Triple Helix
Source: Modified from Barrie, J. *et al*. (2017)

merely transfer technology, they also support economic development through technology licensing and revenue generation, knowledge transfer for social benefit, foster collaborations with industry, venture creation and support for start-ups. It is evident that most licenses may not generate revenue, however, there will be a social benefit, as the birth of the World Wide Web, which changed the way we live, at CERN, Geneva. Technology transfer from university or any institution capable of generating knowledge to an enterprise that allows it to innovate and expand to get the technology to the marketplace has been reviewed (Mendoza *et al*., 2018). The review identifies 15 models, 15 mechanisms and 3 agents, 30 positive and 21 negative factors involved in the process. In most universities in the US, the TTOs support commercial exploitation of research outcomes while managing the Intellectual Property (IP) created within the University (Holgerssona *et al*., 2019). The basis and the best practices of technology commercialisation mainly from publicly funded research is documented (APEC, 2018). This document includes a large number of URLs which are useful, and a glossary of terms related to technology commercialisation. Hamilton & Philbin (2020) reports that a TTO to secure strongest returns, management and deployment of new knowledge with existing companies and startup businesses play a major role.

A university with a successful knowledge and technology transfer mechanism has more opportunities for new research collaboration and funding (McDevitt *et al*., 2014) which improves university competitiveness to attract top faculty and researchers.

Sri Lankan universities are relatively new to research and innovation activities that are of economic value to firms and industries. The degree of intensity of collaboration between universities and industry varies (Larsen *et al*., 2016) from contract research, consulting, testing and certification to training of industry employees and internship programs for students. However, this is on a limited scale, and requires considerably greater scale and scope across universities and among industries to make a significant contribution to economic growth. Several initiatives have been undertaken to resolve some of the problems and constraints reported above. Under the World Bank financed HETC project, Quality and Innovation Grants (QIGs) were awarded on a competitive basis in 2013 to boost dissemination and commercialisation of research in Sri Lanka.

A survey of academics and employers (Dundar *et al*., 2017) gives a snapshot of university-industry collaboration in Sri Lanka. One observation from this survey is not having formal university-industry offices but having individual academics or administrators coordinating such interactions.

METHOD

Development of University Business Linkage (UBL) Cells for Technology and Knowledge Transfer

Various efforts have been made by Universities in Sri Lanka to transfer technology and knowledge created within universities for the benefit of society. However, there were no central offices in Sri Lankan universities to manage IP and to give the support required by the academics to make use of their research for public benefit.

The objective of this study is to identify the extent to which the establishment of University Business Linkage (UBL) cell in each university enhances the university-industry interaction and stimulate innovation. These UBLs will help to transfer the knowledge and technology developed by universities to the society/industry. The development followed 4 phases based on the scorecard developed by Accelerating Higher Education Expansion and Development (AHEAD) operation.

- Phase 1: Establishment of Core UBL Cell (appointment of the director, advisory board, faculty coordinators, drafting the constitution, development of an action plan and monitoring and evaluation system for UBL activities, development of the IP policy at the university level, development of the templates required for commercialisation of research)
- Phase 2: Identification of the internal R & D strength and equip the UBL (Develop an overview of R&D and innovation projects at the university, completion of the infrastructure for the UBL and recruitment of the full-time manager)
- Phase 3: Operationalisation of UBL Cells (Building network of entrepreneurs, investors, small and large businesses, inviting the private sector to participate at the university undergraduate/postgraduate symposia, supporting research teams in their collaborative research agreements, license agreements etc. with external parties)
- Phase 4: Outcome of UBL Cells (Sale of technology transfer and royalty revenue, industry process/logistics improved through research, company investing to commercialise a technology, foreign direct investment to commercialise a technology, startup company formation and creation of employment, government policy designed or improved based on research)

Each Phase consists of a number of actions and different UBLs were requested to identify the target dates for completion of the actions after evaluation of their internal environment. The targeted dates to complete actions were set by the UBL/university and the actual achievement date was used in the self-assessment, based on the criteria given in the scorecard. As an example, if the target date and actual achievement date are within a month, full marks for that action can be claimed. If the two dates are apart by one year zero marks could be claimed. In between 4 such levels were identified giving different weightages for the self-evaluation. The self-evaluation was reviewed by external reviewers and quality of work was also a dimension in the evaluation process. This model allowed the UBL teams to complete different phases at their convenience, depending on their readiness to develop the UBLs. The work with the two new universities established under the state university system in 2021 was also initiated in 2021 itself.

The key skills required by technology transfer managers are reported as knowledge on Intellectual Property (IP) rights, commercial awareness, networking, domain knowledge, negotiating, communication and business development (Mom *et al*., 2012). Development of the necessary expertise on IP is essential for Sri Lanka to be successful in technology commercialisation. As a first step in skills development, which should be the government's responsibility in the Triple Helix model; AHEAD supported the UBL staff in acquiring knowledge in IP rights and commercialization process.

Merely allocating funds will not improve the research landscape in universities. Access to non-patent and patent literature databases should be at the fingertip of the researchers. AHEAD under the Ministry of Education, has taken the initiative and provided access to commercial patent databases namely, Derwent and InnovationQ Plus, for the first time in Sri Lanka. This must be continued after the lifetime of AHEAD as government support is essential for the success of the Triple Helix model.

UBL cells were encouraged to allocate AHEAD funds to secure IP and some UBLs are providing this support to the research teams at their university. Further support through AHEAD was arranged to evaluate inventions from universities by providing Invention Evaluation Reports. Patent Corporation Treaty (PCT) applications were filed only if the evaluation report was promising. The national entry of the PCTs in Sri Lanka was also arranged by AHEAD if a filing at the National Intellectual Property Office (NIPO) was absent.

The role of the UBL is to promote the technology and knowledge transfer process by connecting the available interesting technologies with prospective commercial partners. This is new to Sri Lankan universities. Therefore, it requires special training in this process. The UBL staff, academic staff, legal officers in administration, librarians and research assistants must also get this exposure in order to fully develop the UBLs.

Upon completion of Phase 1 of the UBL Cell, all UBL directors were exposed to US consultations in June 2019 which was financially supported by the US Department of Commerce, Commercial Law Development Program (CLDP). The second CLDP training program was held in December 2020. It was a two-day virtual training program that covered the role of UBLs as tech transfer offices and protecting and exploiting IP generated within the university. The third CLDP program in 2021 was based on the fundamentals of university-industry collaboration. This was a live, interactive virtual group discussion that was held in September 2021. A total of 80 attendees participated in this session. Further, all UBLs were given the opportunity to attend the annual meeting of Association of University Technology Mangers (AUTM) conference in 2021. The 2022 CLDP program focused on preparing for the negotiation of license agreements. This was a multi-series hybrid program consisting of two 2-hour live virtual sessions and one 3-day in-person workshop in Kathmandu, Nepal. United States Patent and Trademarks Office (USPTO) collaborated with CLDP in most of these programs. AHEAD funds were not used in conducting all these programs with CLDP.

To take policy initiatives, a central committee consisting of all UBL Cell directors was established under the apex body of all state universities which is the University Grants Commission (UGC). This UGC/UBL standing committee gathers every 2 months and as of December 2023, 22 meetings have been conducted since its inception in May 2020. The representatives from trade chambers and associations representing different commercial sectors are also invited for these discussions. Five virtual exhibitions were arranged for different commercial sectors with the help of Ceylon Chamber of Commerce where inventions from different universities were showcased to find commercial partners. The participation and networking through these exhibitions indicate the commitment from the 3rd arm of the Triple Helix model.

To check whether the establishment of the UBL has contributed to improve technology and knowledge transfer activities at universities the number of research agreements, license agreements and products commercialized through UBLs from 2019-2023 were collected from UBLs in Q2 2023.

If commercial partners have an interest in taking the products to international markets, a consultancy was arranged to generate freedom to operate search reports to check the possibility of commercialisation in foreign jurisdictions. Additionally, AHEAD arranged license partner scouting assistance for eight cutting-edge inventions to find foreign licensees.

The sustainability of University-Business Linkages (UBLs) will largely depend on the income they generate. It is too early to draw conclusions about this income. The percentage revenue distribution in the IP policy was collected from all UBLs as this is useful for future policy decisions.

Policy initiatives such as Start-up AHEAD, guidelines in the identification of commercial partners, and incentives for academics to engage in commercialisation of research were done through the UGC UBL standing committee meetings.

A baseline survey and stakeholder satisfaction survey were conducted to measure the effectiveness of the intervention.

Analysis methodology

A questionnaire was designed and circulated among stakeholders of 17 UBLs (VCs, UBL advisory board members, UBL directors and faculty coordinators). Data from completed surveys were analysed as follows. Satisfaction scores were calculated by adding the given ranks (1-5) for relevant statements in the questionnaire.

Satisfaction level	Normalised satisfaction score range
Low	0-44
Medium	45-66
High	Above 66

Table 1: Normalized satisfaction scores

Min-max normalisation method was applied to transform satisfaction scores to a common scale of 0-100.

$$Xnormalized = \left(\frac{X - Xmin}{Xmax - Xmin}\right) \times 100$$

Three levels of satisfaction; Low, Medium, and High, were identified based on the normalised satisfaction scores as in Table 1. Overall satisfaction was determined based on the responses to the below questions.

1. The implementation of the UGC circular 10/2016 on the establishment of UBLs and the policy environment at the university is supportive and encouraging,

2. The Government of Sri Lanka (GOSL) funding for equipment, consumables, research assistant salaries, protection of IP, travel for conferences, and the dissemination of research outcomes are adequate, and the cash flow is steady,

3. The opportunities to participate in UBL advisory committee meetings or UBL management meetings at the university are useful and the decisions are taken to utilize research outcomes to benefit society/ industry are satisfactory,

4. There are specific reference standards to assess if the UBL is functioning to specified practice standards and to assess progress (phases in the scorecard),

5. There is an intellectual property policy for technology transfer and the commercialisation of IP with adequate intellectual & legal considerations and the implementation is at a satisfactory level (e.g. IP strategy and royalty distribution etc.),

6. The central guidance for protecting IP (patent, industrial design, etc.), management of IPs and renewal of IP is well-resourced and efficient,

7. The enabling environment in terms of the templates and legal guidance required for commercialisation of research (Non-Disclosure Agreement, Material Transfer Agreement, and license agreement, etc.) are known and the necessary legal support is available,

8. The interest from the academics towards the commercialisation of research/knowledge transfer to external agencies through the UBL is at a satisfactory level,

9. The progress and performance in research (product/ process/ideas) with potential for commercialisation/ knowledge transfer at the university are monitored consistently (e.g. progress in Technology Readiness Level of a new technology),

10. The university has a strategic approach in the process of establishing academic-industry linkages (e.g.: market assessments and sourcing of respective partners, regular programs to disseminate research outcomes to industry, etc.),

11. The interest from the private sector/external parties towards the technology and knowledge transfer through the UBL is at a satisfactory level,

12. The sustainability plans are in place to continue the UBL after the lifetime of AHEAD (e.g.: enhance the research interest of academics, efficient procedures to use monetary benefits from industry and external partners with accountability, arranging internships for undergraduates at UBLs, incentives and training for UBL managers),

RESULTS

The extent of the impact of the Triple Helix model could be verified by closely observing the collaboration among the government, academia, and industry to facilitate the transfer of technology through the UBL and by examining the outcomes produced by these cells over a five-year period.

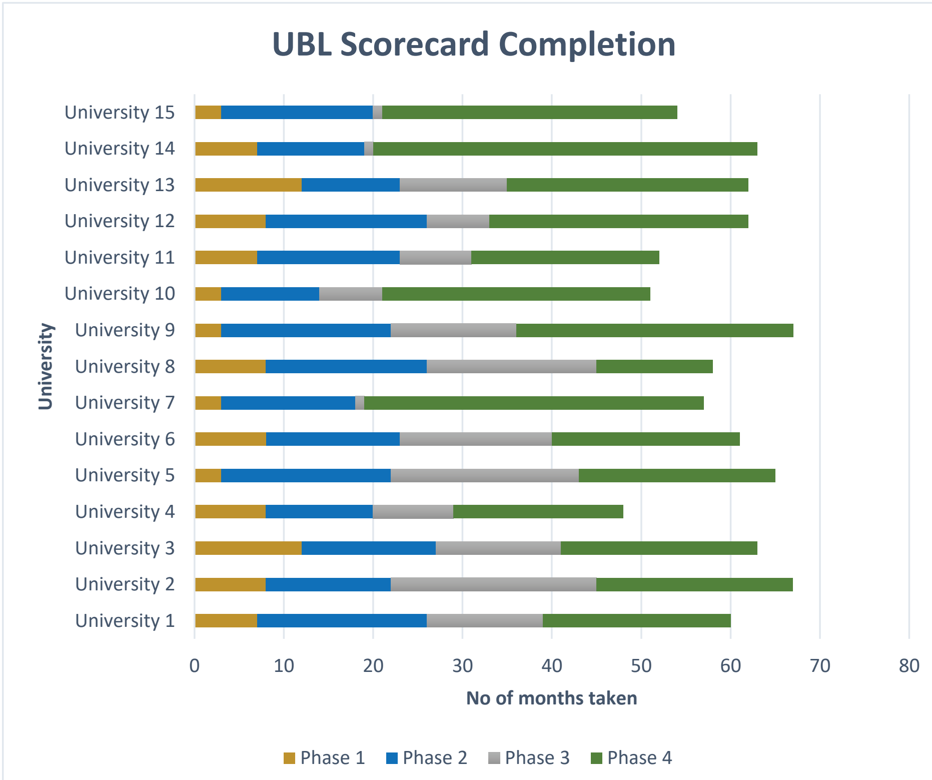


Figure 4: Number of months taken by different UBL to complete the different phases of UBL

Essential attributes in successful university - industry linkage

The establishment of a well-informed University Technology Transfer Office is an essential attribute in the successful University-Industry interaction as it provides support to mediate relationships between academia and industry. Having an IP policy and the template documentation in place are top priorities when developing UBLs.

During Phase 1 of the scorecard, all UBLs were requested to work on an Intellectual Property policy and other templates required for the commercialisation of research. Those templates were Invention Disclosure form (IDF), Non-Disclosure Agreement (NDA), Material Transfer Agreement (MTA) and license agreement. At the time of implementation of UBLs under AHEAD in March 2018, only one university had a finalized IP policy document. However, by 2019 April all universities (Maximum 13 months, based on Figure 4) finalised their IP policy and had developed templates required for commercialisation of research. The contents in all aforementioned documents were entirely decided by the UBLs at the university level.

The role of universities in generating growth through research, innovation and development of linkages with industry is of major importance to any country. The funding available for the university invention, technological sophistication of industries, the capital available to firms, and the governance framework for innovation are the challenges for Sri Lanka. One significant achievement that will accelerate the decision-making process with regard to IP commercialisation is the existence of an IP policy at the university level. The templates available for commercialisation of research will also be helpful to expedite the process, although the licensing terms and some conditions in these agreements will have to be modified for different inventions. Once a university completes Phase 1, the first tranche of funds was released for the UBL to plan the actions in Phase 2.

All universities completed Phase 2 within 27 months which was by June 2020. As soon as a university successfully completed the Phase 2 evaluation, the second tranche of funds was released enabling them to invest the funds in Phase 3 actions. All 15 universities completed phase 3 within 45 months (Figure 4) which was by December 2021. The third tranche of funds was released to the UBLs as soon as Phase 3 was completed to

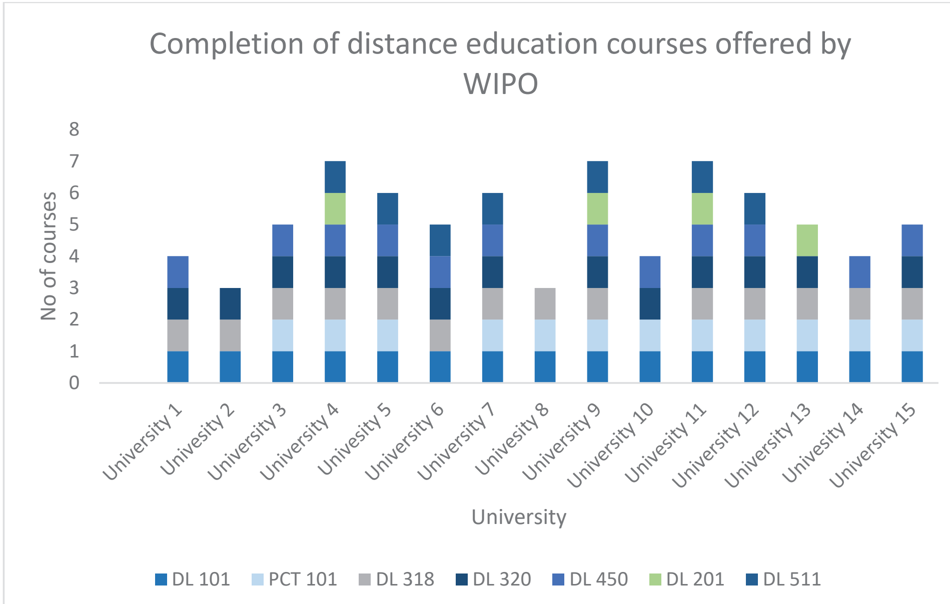


Figure 5: Completion of WIPO e-learning courses by UBL director/managers as at December 31, 2022. (DL 101: General course on intellectual property, PCT 101: PCT Distance learning course: Introduction to the Patent Corporation Treaty, DL 318: Patent Information Search, DL 320: Basics of patent drafting, DL 450: Intellectual property management, DL 201: Copyright and related rights and DL 511: Software licensing including open source.

work on Phase 4. Within 5 1/2 years after implementation of UBLs (by October 2023), all UBLs completed the selected actions in the Phase 4.

Technology transfer knowledge acquisition, management and deployment

AHEAD under the Ministry of Education, encouraged all UBL managers to follow the WIPO Distrance Learning programs. In the last quarter of 2019, managers were requested to follow the course on "Patent information search". In Quarter 1 of 2020, the managers were requested to follow the distance learning program on "Basics of patent drafting". Thereafter the managers were given the freedom to choose courses which would help them to perform well at the UBL. AHEAD recommended the applications and WIPO provided scholarships for the UBL managers to follow these courses (Figure 5). Some UBL directors also followed these courses, which will undoubtedly help to strengthen the AHEAD/UBL program.

During the initial stages the manager was empowered with the necessary skills. Thereafter each UBL can consider providing short term internships to the fresh graduates at UBLs under the guidance of the Director. These interns can help UBL to provide the services related to patent prior art searches etc. for a wider academic community if the interns are identified from various disciplines. Interns could be financially supported from the earned income.

Commercialisation journey begins with an Invention Disclosure

GoSL has invested funds through various ministries for researchers at universities to engage in research. However, to begin the commercialisation journey the researchers require some support. At the university level this formal support was absent prior to AHEAD/UBL. The method described by Norman & Eisenkot (2017) which is an accepted norm in the world was adopted by all UBLs and the journey starts with the submission of an Invention Disclosure Form (IDF). It is the responsibility of the UBL to evaluate the technology with the help of the UBL advisory board and/or the UBL faculty coordinators. Having a strong advisory board with industry participants and committed UBL faculty coordinators are essential elements for UBL growth and sustainability. At the end of 5 years of development, the number of IDFs submitted to different UBLs are presented in Figure 6 which gives an idea about the university readiness towards this initiative.

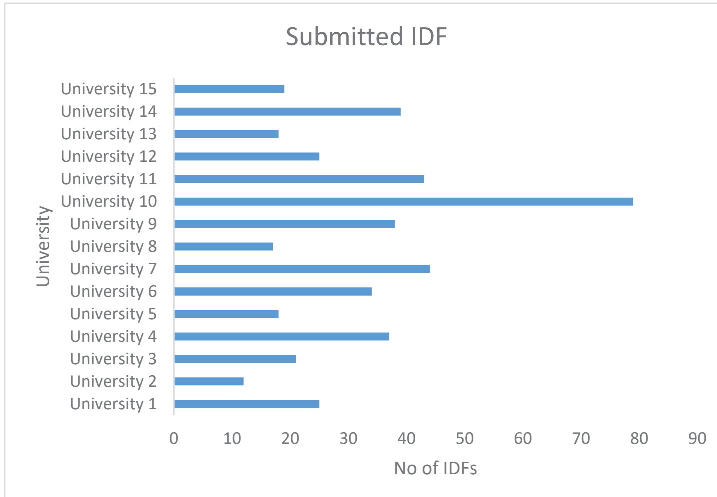


Figure 6: Number of Invention Disclosure Forms (IDFs) submitted to UBLs

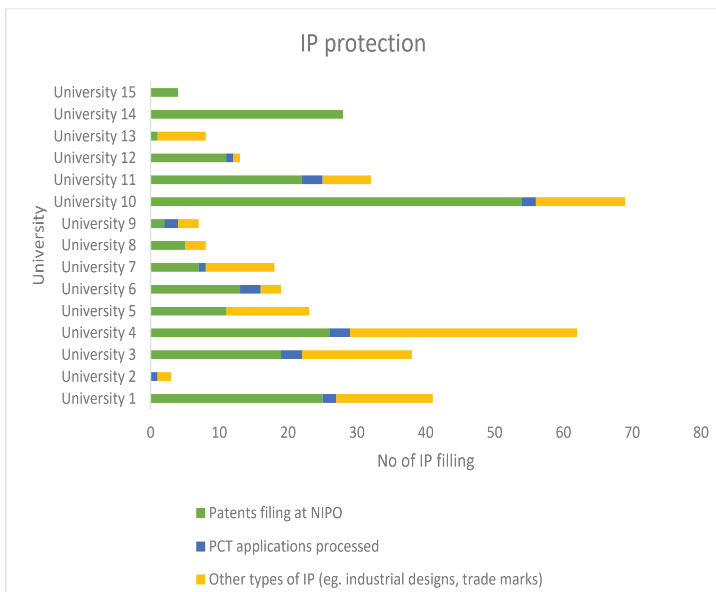


Figure 7: Protection of Intellectual Property through UBLs

The interest from the university in the Triple Helix model is evident from the number of IDFs received by the UBL. All UBLs have received more than 10 IDFs within 5 years of implementation.

Access to commercial patent databases and support for IP-filing

Singh *et al*. (2016) reviewed the use of various free and commercial patent databases, highlighting their unique features, strengths, and weaknesses. The review concludes that scanning freely accessible patent databases is appropriate for determining if a technology is novel and inventive which contains millions of inventions that have already been patented. However, to conduct value added searches efficiently, the use of commercial patent databases is important.

Before the establishment of UBLs, most universities did not have a support system for researchers to analyze the outcome of their research and to identify commercially exploitable work. Proper analysis of the value of the IP and the suitability for formal filing of IP can be evaluated to a certain extent using the commercial patent databases subscribed by AHEAD. Further, support is essential for the researchers to file their IP in different jurisdictions depending on the technology and the potential commercial partners. This should be a joint effort by the inventor and the university and efforts taken by different UBLs in filing of IP from 2019-2023 is given in Figure 7. AHEAD financially supported this activity.

The total number of patents filed at NIPO during 5 years of implementation is 228 based on Figure 7. This shows that there is an interest from the university in IP protection. The commercial exploitation of the patents will provide the interest and the capacity of the private sectors which will assess the industry input in the Triple Helix model. The total number of products in the market is 42 based on Figure 8, however some products are available only through on-line platforms.

The access to already existing patents will stop the researchers spending the public funds on reinventing of technologies already known to the world. The above aspects should be taken into consideration when evaluating the return on investment on these commercial databases. Patent development in partnership with industries is still low (Alves & Daniel, 2022), access to the databases will also strengthen the co-development of patents with a focus on possible markets.

Patent protection is just the start of the commercialisation journey. In order to take maximum benefit from filing, the patent renewal needs to be done. The incentive for the renewal comes only if the patent gets commercialised (Marcus & Aaboen, 2019; Svensson, 2012). An important factor which affects the possibility of commercialisation is the quality of the patent which in turn will determine the survival of the patent.

The number of patents may not have a strong link towards the success in commercialisation as many non-patent products and processes also get commercialised. A study carried out on 3736 Australian inventions indicates that patents play a modest role in successful commercialisation (Webster & Jensen, 2011). It is important to note that patents are neither a necessary nor sufficient condition for successful commercialisation.

Figure 7 also shows that 21 Patent Cooperation Treaty (PCT) filings were done at WIPO. AHEAD supported some of the filing and the Ministry of Education procurement committee approved such a consultancy for the first time in Sri Lanka indicating the commitment from GoSL. PCT filing was encouraged for the inventions with a good Invention Evaluation Report in order to take inventions to the international market. The International Search Report (ISR) obtained from PCT filing will indicate the strength of the invention. ISR can be used to take the university inventions to the global market with suitable commercial partners. Of the above 21 PCTs, 7 PCT applications received “A” grade for all claims.

The other forms of IP amount to 124, which includes industrial designs, trademarks and copyrights will also help the commercialisation of research outcomes through different licensing options.

Table 2: Outcome of the sector wise virtual exhibitions organised by AHEAD with the support of The Ceylon Chamber of Commerce

University	Sector wise virtual exhibitions (Number of exhibited inventions/number of companies interested)				
	Food	Electric, electronic & IT	Agriculture	Medical	Creative Arts
University 1	3/2	1/1	4/0	3/0	-
University 2	1/1	1/0	4/2	-	-
University 3	1/1	2/2	-	2/0	1/0
University 4	-	4/2	3/5	1/0	-
University 5	4/2	4/1	3/1	2/0	-
University 6	3/3	1/1	2/1	4/0	1/0
University 7	3/3	3/0	4/3	-	-
University 8	3/3	3/1	4/3	2/0	2/0
University 9	2/1	6/1	1/1	-	-
University 10	4/4	-	3/2	5/0	-
University 11	3/3	3/1	6/1	-	-
University 12	1/1	2/0	-	2/0	1/0
University 13	-	4/1	-	-	4/0
University 14	3/2	3/0	3/3	1/0	-
University 15	4/3	3/1	3/3	4/0	-

Collaborative efforts and international support

By partnering with the US Department of Commerce/ CLDP, AHEAD managed to provide several training programs to all UBLs. During these training sessions important aspects of technology transfer were addressed. The first exposure was given to all 15 UBL directors in 2019 in USA about the essential elements in the documents developed during Phase 1 UBL scorecard. The CLDP training programs in 2020, 2021 and 2022 covered essential elements of technology transfer, key terms and conditions for licensing agreements, technology valuation, negotiation basics, and case studies exercises and discussions culminating with mock negotiations and team critiques. The number of participants in these programs varied from 40-80. The final Tech Transfer consultation was given to 17 participants from universities and 3 from UGC, Ministries of Education and Finance with CLDP support in December 2023 in USA.

Technology Innovation Support Centers (TISC) is a program developed by the World Intellectual Property Organisation (WIPO) to support innovators in developing countries. It is implemented through the NIPO in Sri Lanka. AHEAD recognised that not having an allocation of funds to establish TISCs at universities can hamper the functioning of TISCs in universities. As the funds for the establishment of UBLs are from AHEAD, allocating an office space within the UBL for the TISC was an ideal way for the implementation of this activity. "Establishment of a TISC" was added as one action in the Phase 2 of the UBL score card creating an enabling environment to establish TISCs in all state universities in Sri Lanka.

All the above international support mediated through AHEAD could be considered as the government support given to the UBLs in the Triple Helix model.

UBL & commercial partners

Collaboration with industry is identified as a solution to reduce several barriers in the university-industry technology transfer process (Daniel & Alves 2020). In order to support the UBLs to identify commercial partners, AHEAD organised 5 virtual exhibitions with the support of the Ceylon Chamber of Commerce to showcase the inventions by universities to the private sector (Table 2).

The total number of registrants from different fields for the above exhibitions was 132 (from 99 food companies), 233 (from 162 agriculture companies), 61 (from 40 electric, electronic & IT companies), 58 (from 51 medical companies) and 10 (from 4 creative arts). "The number of exhibited inventions/number of companies interested" in Table 2 and "number registered" shows that the private sector in food, IT, electrical, agriculture are keen to work with universities.

The results from Table 2 indicate that more work should be done to win the interest and trust from the private sector to engage with universities in innovation activities.

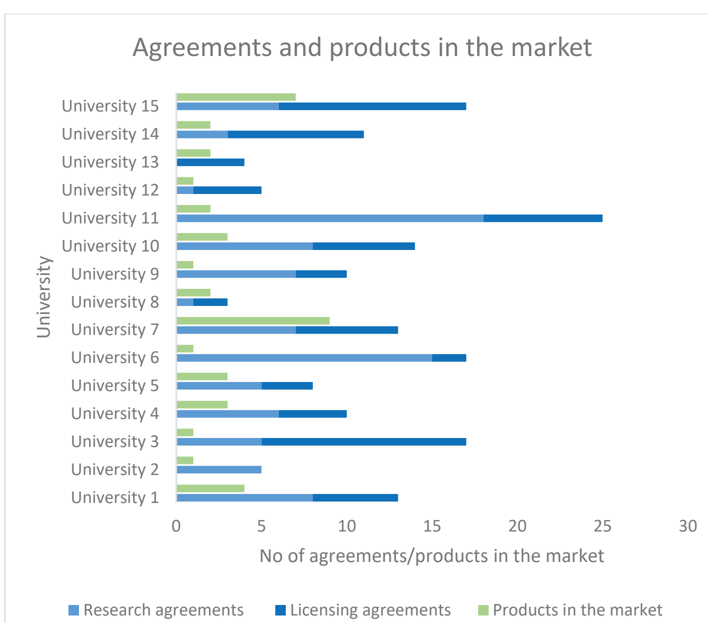


Figure 8: Number of research agreements, license agreements and products facilitated through UBLs from 2019-2023

Technology licensing and products in the market

Collectively all UBLs have signed 77 license agreements with the private sector during 5-year development based on Figure 8. The licensing terms vary from exclusive to non-exclusive, with significant differences in duration, field of use, and territory. The agreement period varies from 1 to 20 years in general. UBLs use 20 years as the upper limit as the lifetime of a patent is 20 years. The analysis of already signed agreements indicates that there are 3 types namely "lump sum upfront payment with or without royalty" and "royalty only" licenses. An upfront payment without a royalty percentage would not be beneficial for the sustainability of the UBL, especially if the product is going to stay on the market for a long time.

The royalty revenue percentages in the license agreements signed by UBL cells range from 0.25% to 10%. In a few licensed agreements, royalty revenue has been calculated based on the profit earned from the product rather than the sales revenue, which is unfavorable from the university's perspective. Since the profit can be manipulated, it is advisable to come to agreements based on the audited net sales of the licensed product.

While encouraging the protection of IP and licensing the technology, UBLs have also facilitated the commercialization of non-IP products and processes. This is a very important aspect in the development of the UBLs in Sri Lanka. Further know-how agreements where patenting is not an option were also encouraged. The 95 research agreements or MOUs shown in Figure 8 will also lead to licensing opportunities in the years to come.

Based on Figure 8, 42 products have come to the market within the last 5 years. It was noted that it is relatively easy to get food, agriculture, cosmetics, and sanitary sector items in the market (AHEAD 2023). This booklet also recognises the efforts taken by UBLs to get IT/Artificial Intelligence and Electric/automation items in the market.

The future GDP growth per capita is positively associated with the increase in the number of universities. It is estimated that 0.4% higher GDP per capita in the region is expected by 10% increase in the number of universities (Valero & Reenen 2019). This increase in per capita is due to the increased supply of human capital as well as innovation. Research and development in universities can enable firms to either develop new products and processes or improve existing products and processes to a higher level which will help the country in the long run (Davies *et al*., 2021).

The Sri Lankan industrial firms acquire new technologies from developed countries via international technology transfers. However, during the transfer of technology, the local firms face many barriers in relation to the complexity of the process, human resources, scarcity of the raw materials, language barriers etc. (Malik & Wickramasinghe 2013). In certain instances, a local agent supports the technology transfer, however in certain instances the local agent does not possess sound technical knowledge in the technology transferred. Certain UBLs may be able to provide this support in the future (Davis & *et al*., 2021).

The importance of connecting academics to the industry utilising modern technology is recognised as

Table 3: Percentage Distribution of revenue based on the IP policy (university percentage include department/faculty/institute)

University	Inventor	University	UBL
University 1	50	20	30
University 2	80	20	00
University 3	60	20	20
University 4	60	40	00
University 5	60	10	30
University 6	70	18	12
University 7	70	05	25
University 8	60	30	10
University 9	75	15	10
University 10	70	15	15
University 11	70	10	20
University 12	60	20	20
University 13*	80	10	10
University 14	60	39	01
University 15	60	40	00

* Proportion is for net income below Rs 500,000.

an important need that will bridge the gap between the academic institutions and the private sector. With this understanding, an app, called CONNECT AHEAD, was developed to connect the two parties.

Sustainability and securing the future of UBL staff

In the long term, the UBL-Cells should have a cadre of permanent directors and managers to manage the work of these Cells. The permanent cadre of UBL-Cell managers was an agreed action with the ministry, and discussions are in the process to obtain the necessary approval. This will enable the universities to retain the especially trained staff for this purpose.

The next step would be to hire technology licensing managers and provide them with necessary skills to negotiate with the private sector and obtain the maximum benefits to universities from their commercialisation activities while paying attention to the requirements and needs of the private partners.

Universities were given the freedom to decide on the revenue distribution from the commercialization of research in their IP policies. According to the revenue distributions in IP policies (Table 3), all universities have allocated at least 50% or more to the research team to motivate the academic staff and researchers involved. However, the percentage allocation to UBL is not at a desirable level in a few universities. This was pointed out during the UBL Cell evaluation, and most universities have discussed this matter to revise the revenue distribution. In certain universities, a percentage of the university allocation is not ear-marked for UBL work. The recommendation from AHEAD is to have this percentage clearly indicated in the IP policy for the sustainability of UBL work after the lifetime of AHEAD.

Challenges for success: ease of knowledge and Technology Transfer

When conducting research, the researchers face numerous obstacles due to the lack of state-of-the-art equipment, insufficient or unavailability of consumables and in general poor infrastructure to conduct research work. Obtaining permits for the purpose of importing certain chemicals and other consumables to the country and the issues related to clearing of such goods from customs are not straight forward, causing impediment to conduct research.

The bureaucracies involved in procurement and financial processes further hamper the research activities conducted at universities, as it is difficult to use the available funds effectively and efficiently. Although interactions with industries have been proposed as a way to move forward in research, the mechanism to achieve this efficiently and efficiently, has not been identified and clear guidelines have not been laid down towards such endeavors. However, with the development of UBLs as detailed in Figure 9, Individual researchers, Departments, Faculties, and Incubators will disclose their inventions to UBL. UBL will transfer the technology to an existing industry, or a start-up by staff & students or start-up by an investor.

The evolution of different technology transfer models has been reviewed (Arenas &González, 2018) and the reported models span from 1982 to 2015.

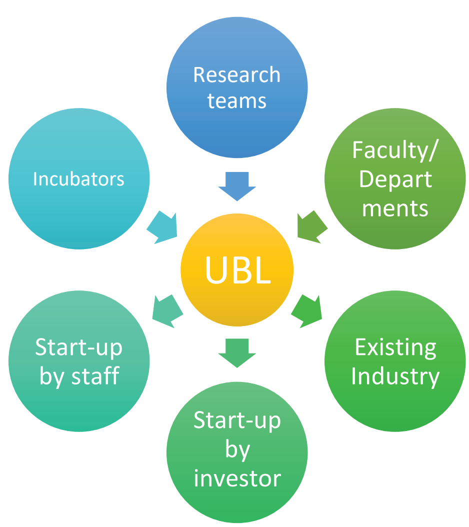


Figure 9: Schematic diagram indicating commercialisation of research through UBL.

Table 4: The responses to the stakeholder satisfaction survey in 2021 and 2022/23 (SD: Strongly Disagree, D: Disagree, A: Agree, AS: Strongly Agree, NO: No opinion, F: Frequency)

		Year 2021						Year 2022/23					
Question		SD	D	A	SA	NO	Total	SD	D	A	SA	NO	Total
1	F	0	0	11	16	1	28	0	1	10	20	1	*32*
	%	0%	0%	39%	57%	4%	100%	*0%*	*3%*	*31%*	*63%*	*3%*	*100%*
2	F	2	13	10	3	0	28	1	10	13	8	0	*32*
	%	7%	46%	36%	11%	0%	100%	*3%*	*31%*	*41%*	*25%*	*0%*	*100%*
3	F	0	0	13	15	0	28	0	0	18	14	0	*32*
	%	0%	0%	46%	54%	0%	100%	*0%*	*0%*	*56%*	*44%*	*0%*	*100%*
4	F	0	0	13	15	0	28	0	2	16	14	0	*32*
	%	0%	0%	46%	54%	0%	100%	*0%*	*6%*	*50%*	*44%*	*0%*	*100%*
5	F	0	1	9	18	0	28	0	1	11	20	0	*32*
	%	0%	4%	32%	64%	0%	100%	*0%*	*3%*	*34%*	*63%*	*0%*	*100%*
6	F	0	3	18	7	0	28	0	3	15	13	1	*32*
	%	0%	11%	64%	25%	0%	100%	*0%*	*9%*	*47%*	*41%*	*3%*	*100%*
7	F	0	1	17	10	0	28	0	0	18	14	0	*32*
	%	0%	4%	61%	35%	0%	100%	*0%*	*0%*	*56%*	*44%*	*0%*	*100%*
8	F	1	7	16	3	1	28	1	9	15	7	0	*32*
	%	4%	25%	57%	10%	4%	100%	*3%*	*28%*	*47%*	*22%*	*0%*	*100%*
9	F	0	4	16	6	2	28	0	6	22	4	0	*32*
	%	0%	14%	57%	22%	7%	100%	*0%*	*19%*	*69%*	*13%*	*0%*	*100%*
10	F	0	2	15	9	2	28	0	2	25	5	0	*32*
	%	0%	7%	54%	32%	7%	100%	*0%*	*6%*	*78%*	*16%*	*0%*	*100%*
11	F	0	8	18	2	0	28	0	8	22	2	0	*32*
	%	0%	29%	64%	7%	0%	100%	0%	25%	69%	6%	0%	*100%*
12	F	1	1	19	4	3	28	0	7	16	7	2	*32*
	%	4%	4%	67%	14%	11%	100%	*0%*	*22%*	*50%*	*22%*	*6%*	*100%*

Oxford University Innovation Limited (OUI) is a technology transfer company owned by the University of Oxford. This company manages the University of Oxford Intellectual Property portfolio and works with the researchers at the university carrying out the functions of a TTO. A similar model is adopted by the Imperial College, London to commercialise the research findings through the Imperial College Innovation Limited. Although these are private universities and their models may not be directly applicable to universities in Sri Lanka, a mechanism must be proposed to enable quick decision-making to facilitate the commercialization of research.

Separate Tech Transfer Entities within a University may be formed as companies limited by guarantee in terms of Section 34 of the Companies Act No. 07 of 2007. Unlike a company limited by shares, a company limited by guarantee does not obtain its initial working funds from its members, but usually these initial working funds are obtained from other sources e.g.: endowments, grants.

The main advantages of forming these entities as companies limited by guarantee are to facilitate the decision-making process when interacting with external parties and to do business easily. In addition, the procurement processes and financial transactions can be expedited. However, those engaged in this technology and knowledge transfer must take caution not to disrupt the university teaching activities. The objects of the company should be for promotion of commerce, art, science, or other useful objects and not for manufacturing or sales of technologies. The company must apply its profit, if any, or other income in promoting its objects and it should prohibit the payment of any dividends to its members. In fact, such companies involved in technology and knowledge transfer would provide useful avenues for students and staff to conduct advanced research in universities as the fixed assets acquired would be in the inventory of the university.

Start-up AHEAD policy

There are situations where it is difficult to find a commercial partner who is interested in investing in the production and distribution of the good/s and service/s which embodies the university invention. In such situations start-ups would be an alternative approach in the commercialisation process. These start-ups may survive or will be bought by technology giants. If a foreign company acquires the start-up and invests in Sri-Lanka, there will be export lead growth.

Start-up AHEAD is a university staff and student start-up policy (UGC Commission Circular No. 12/2022) developed to facilitate the commercialisation of inventions developed at universities in Sri Lanka. This guide will encourage university staff and students in Sri Lanka to form start-ups outside the university's purview, promoting entrepreneurship as a career option.

The developed guidelines are broad, allowing individual universities to develop their own comprehensive guidelines and policies based on this document to facilitate start-up formation. The University will not have to bear any legal or financial obligations towards the start-up or its activities.

Academic entrepreneurship activities should incorporate concepts such as social entrepreneurship to enhance societal benefits (Amry *et al*., 2021) for the universities to contribute to socio-economic development.

Stakeholder satisfaction survey

The results of the overall satisfaction based on the responses to 12 questions in two years are reported in Table 4. Total number of respondents is 28 and 32 in 2021 and 2022/23 respectively.

The satisfaction has been improved in general, however it was noted that the opportunities to participate in UBL advisory committee meetings or UBL management meetings at the university requires attention.

Table 5: Satisfaction of the comprehensiveness of a policy and regulatory guidelines given under the UGC circular 10/2016 for research and commercialisation (the responses from the UBL directors)

	Low	Medium	High
Baseline survey (2018 retrospective)	50%		50%
Stakeholder feedback survey 2021	7%	40%	53%
Stakeholder feedback survey 2022/23	6%		94%

The stakeholder feedback survey in 2021 and 2022/23 indicates (Table 5) that there is an improvement in the satisfactory level shown toward the policy and regulatory guidelines.

Table 6: Satisfaction of reference and practice standards to assess offices (responses from the UBL directors)

	Low	Medium	High
Baseline survey (2018 retrospective)	67%		33%
Stakeholder feedback survey 2021		47%	53%
Stakeholder feedback survey 2022/23			100%

The "satisfaction of reference and practice standards to assess offices" (Table 6) also indicates that in 2021, the low satisfactory level was zero. In 2022/23 all have shown high satisfaction. The AHEAD UBL scorecard developed to guide the establishment of UBL clearly has an impact on the improvement of the satisfactory level. Continuous monitoring and evaluation were conducted based on the UBL scorecard during 2018-2023.

The increase in the satisfactory level as indicated in Table 7 would support the university-industry interaction and prove the impact of the effective use of Triple Helix model.

Table 7: Legal support and guidance for research and commercialisation and availability of guiding documentation and templates required to commercialise research outcomes (responses from the UBL directors)

	Low	Medium	High
Baseline survey (2018 retrospective)	50%		50%
Stakeholder feedback survey 2021		27%	73%
Stakeholder feedback survey 2022/23	6%		94%

Table 8: Overall satisfaction score categories for UBL Directors

	Low	Medium	High
Baseline survey (2018 retrospective)	60%	20%	20%
Stakeholder feedback survey 2021	17%	17%	66%
Stakeholder feedback survey 2022/23		6%	94%

The improvement in the overall satisfactory level of the UBL directors is encouraging based on the data in Table 8.

The analysis of the overall satisfaction during the 2022/23 survey from all stakeholders (16 Vice chancellors, 16 UBL directors, 12 members of the UBL advisory committee and 19 UBL faculty coordinators) shows zero at the low satisfactory level. However, the medium and high satisfactory level are 25% and 75% respectively. The survey was conducted at 2 new universities as the UBL work was initiated in these universities as well.

CONCLUSION

The establishment and the development of the UBLs which act as technology and knowledge transfer entities since 2018 within the state university system in Sri Lanka proves that the enhancement of the roles played by the player clusters of the Triple Helix model has greatly influenced in improving university-industry interaction.

All universities completed the establishment of core UBL cell which required the completion of standard templates required for the commercialisation of research (Phase 1 of UBL) and identification of the internal R & D strength and equip the UBL (Phase 2 of UBL) within 27 months, which indicates that there is a need to have UBLs set up at the universities. All 15 universities completed operationalisation of the UBL cell within 45 months which requires building a network of entrepreneurs, investors, small and large businesses and getting them to work with research groups within the university (Phase 3 of the scorecard). Fifteen universities completed the 4 actions stipulated in Phase 4 of the score card within 5 years and 6 months of the implementation UBL Cells.

The number of Invention Disclosure Forms submitted to UBLs varied from 12-79 in 15 different UBLs. A total of 228 patent applications were submitted to NIPO, a total of 124 other forms of IP were filed through UBLs and 21 PCT applications were filed at WIPO by the 15 UBLs from 2019-2023. This development is significant considering the fact that these outcomes were achieved during the first 5 years of establishment. These figures indicate that all 3 arms of the tripe helix model; government, university and the industry, have been integrated well through the UBL. However, efforts must be made to further develop the UBLs and to strengthen the research and innovation capacity of all universities.

It is encouraging to see that 14 UBLs have already marched towards the commercialization journey having signed licensing agreements. The research agreements signed by all UBLs during the first 5 years of development amount to 95, while a total of 77 licensing agreements have been signed by all UBLs. However, most of these agreements do not cover technology intensive innovations and the number does not necessarily indicate advanced technology readiness. It only indicates that the environment has been created for academics to make use of their research findings for the public good. On the other hand, it indicates that the private sector in the Triple Helix model is also willing to work with universities and UBLs are facilitating this interaction. Most licensees are SMEs, but well-established companies have also partnered with the UBLs.

Knowledge about the key features in research and licensing agreements and having strong negotiation skills when finalising royalty payments are scarce for the UBL and researchers at Sri Lankan universities. This gap was filled by arranging training sessions with the help of the US Department of Commerce, Commercial Law Development Program. Further, some UBLs used AHEAD funds to obtain necessary support in the identification of legal advisors or a firm.

During commercialization with local industries, the main aim should not be to maximize profits but to establish a solid, long-lasting, and mutually beneficial relationship. In this regard efforts must be made to have a mutual respect for both parties when engaging in negotiations. The negotiation exercises conducted during UBL development will help to improve such skills among UBL staff. As an example, rather than a one-time payment from a license agreement, a percentage royalty would be beneficial for the sustainability of the UBL if the product stays in the market for a long time. Calculating the percentage royalty based on the product sales can be done reliably using audit reports, hence this should be a better option than a percentage royalty based on the profit.

The next step would be to give wider publicity for UBL work and the available technologies for licensing. Television programs arranged by AHEAD with the help of two local channels helped to obtain some visibility. However, the UBLs can use social media platforms more effectively for the same purpose. Development and updating the UBL websites, conducting series of virtual exhibitions with the Ceylon Chamber of Commerce and indicating licensing opportunities at WIPO patent scope database for the PCTs filed were attempted to improve the tech/knowledge transfer initiatives.

PCT filing was encouraged for the inventions with a good Invention Evaluation Report to take inventions to the international market. The International Search Report (ISR) obtained from PCT filing will indicate the strength of the invention. ISR can be used to take the invention to the global market with suitable commercial partners. Of the above 21 PCTs, 7 PCT applications received "A" grade for all claims. The university support for screening inventions to identify the novel inventions with inventive step and providing IP filing support which was initiated by AHEAD should continue beyond AHEAD. Hence allocating funds for such initiatives is extremely_important. Thereafter a strategy should be in place to identify local or foreign licensees especially for the products which will become integral part of the global value chain.

AHEAD recognised the value of multiparty engagement in improving the innovation landscape in Sri Lanka and works closely with US Department of commerce/CLDP, USPTO and WIPO. In order to facilitate the IP protection, AHEAD collaborated closely with NIPO.

Managers are acquiring necessary skills to manage the UBLs, however some of the trained managers are leaving the UBLs to pursue other career pathways. AHEAD has made a request to the Ministry of Education to create cadre positions for the managers. Such career prospects will motivate the managers to remain at the UBLs and contribute to the development. A strong team must be built around the UBLs now itself to improve the awareness of tech transfer and IP based licensing. One option for the UBLs is to provide internships to the fresh graduates as the exposure in a UBL will also provide new career pathways to the interns.

Revenue distribution in the IP policies indicates that all universities allocated 50-80% of the revenue from the commercialisation of research for the iinventors. However, the allocation for the UBL varies from 0-30%. A few universities have a low percentage allocated to the UBLs in their IP policy in the distribution of royalties. This must be carefully reviewed considering the importance of sustainability of the UBLs.

The success of UBLs will largely depend on the relationships they build with all internal and external parties. It is recommended to establish very strong, solid, lasting relationships at various levels.

An attractive reward system must be in place for researchers to get involved in research which will bring tangible outcomes to society or industry. This would be an incentive for innovation and commercialisation. In Sri Lanka, the university academics are entitled to a research allowance where the efforts taken in conducting research and development is assessed in awarding the allowance. Based on the efforts through AHEAD, successful commercialisation can also be considered in awarding research allowance to university academics based on the UGC Establishment Circular No. 05/2014(iii) (UGC Establishment Circular 2022).

The freedom in the selection of commercial partners by research teams along with the UBLs play a very important role in commercialisation of research. The selection of a commercial partner should not be considered as a typical procurement as finding a commercial partner from a limited pool of interested companies is extremely challenging, thus, in this instance, GOSL procurement guidelines may not be applicable. Although the Intellectual Property belongs to a particular university, it is important to consider the views of the inventor in the identification of the commercial partner and the inventor should have the right of first refusal. UGC Commission Circular No. 12/2022 will guide universities during selection of the commercial partners or promoting Start-ups.

There are several policy initiatives required to promote research and innovation, especially through university-industry linkages targeted at growth promoting activities. Facilitating the freedom to enter into MOU's and agreements with foreign partners and expediting importation and clearance procedures for equipment and consumables required for research are two key areas where the government attention should be drawn to.

Resources and networking are essential for innovation as this has led to greater research collaboration among academics across universities, countries and even continents. With AHEAD investment, all 15 universities purchased state-of-the-art equipment for research. Over time, it would be encouraging to see rising numbers of Sri Lankan academics collaborate with peers and making use of those state-of-the-art equipment.

For a university to generate inventions that can be transformed to benefit the society, it has to be a research university which has good networks and cooperation with industry, business, and government, with adequate funding sources from government, venture capitalists and/or angel investors. The established UBLs will coordinate such activities and protect IP. Hence the sustainability of the UBL is an essential requirement in the Sri Lankan state university system.

REFERENCES

Altbach, P. (2015) 'Massification and the Global Knowledge Economy', *International Higher Education*, 80, pp.4-5.
DOI: https://doi.org/10.6017/ihe.2015.80.6129

Alves, L., & Daniel, A.D. (2022) 'University-Industry Partnerships in the Development of the Academic Patents: Factors for Building Trust', in Machado, J., Soares, F., Trojanowska, J., Ivanov, V. (ed.) *Innovations in Industrial Engineering. ICIENG 2021. Lecture Notes in Mechanical Engineering*. Switzerland: Springer Nature, pp. 441–452.
DOI: https://doi.org/10.1007/978-3-030-78170-5_38

Amry, D.K., Ahmad, A. & Lu, D. (2021) 'The New Inclusive Role of University Technology Transfer: Setting an Agenda for Further Research', *International Journal of Innovation Studies*, 5(1), PP. 9-22.
DOI: https://doi.org/10.1016/j.ijis.2021.02.001

Asia-Pacific Economic Cooperation Project: PPSTI 01 2017A. (2018) '*Handbook on Technology Commercialization Practices in APEC Economies: APEC Policy Partnership on Science, Technology and Innovation*'. MaTRineX Academy of International Innovation and Strategy.

Arenas, J.J. & González, D. (2018) "Technology Transfer Models and Elements in the University-Industry Collaboration", *Administrative Sciences*, 8(19), pp. 2-17.
DOI:10.3390/admsci8020019.

Aturupane, H. (2016) Enriching and Accelerating Higher Education Development in Sri Lanka, Gamani Corea Memorial Lecture, Gamani Corea Foundation, Colombo, Sri Lanka.

Aturupane, H., Higashi, H., Ebenezer R., Attygalle, D., Sosale, S., Dey, S. & Wijesinghe, R. (2021) *Sri Lanka Human Capital Development: Realizing the Promise and Potential of Human Capital*. Washington DC: The World Bank.

Barrie, J., Zawdie, G., & João, E. (2017) "Leveraging Triple Helix and System Intermediaries to Enhance Effectiveness of Protected Spaces and Strategic Niche Management for Transitioning to Circular Economy", *International Journal of Technology Management and Sustainable Development*, 16(1), pp. 25-47.
DOI: http://dx.doi.org/10.1386/tmsd.16.1.25_1.

Carlsson, B., Zoltan, J.A., Audretsch, D.B., & Braunerhjelm, P. (2007) *The Knowledge Filter, Entrepreneurship, and Economic Growth*. Working Paper Series in Economics and Institutions of Innovation No. 104, Royal Institute of Technology, CESIS - Centre of Excellence for Science and Innovation Studies.

Daniel, A.D. & Alves, L. (2020) 'University-Industry Technology Transfer: The Commercialization of University's Patents', *Knowledge Management Research & Practice*, 18(3), pp 276-296.
DOI: https://doi.org/10.1080/14778238.2019.1638741

Davies, G.H., Flanagan, J., Bolton, D., Roderick, S. & Joyce, N. (2021) "University Knowledge Spillover from An Open Innovation Technology Transfer Context", *Knowledge Management Research & Practice* 19(1), pp 84-93.
DOI: https://doi.org/10.1080/14778238.2020.1746204.

Dundar, H., Millot, B., Riboud, M., Shojo, M., Aturupane, H., Goyal, S. & Raju, D. (2017) *Sri Lanka Education Sector Assessment: Achievements, Challenges, and Policy Options: Directions in Development*. Washington, DC: World Bank.

DOI: https://doi.org/10.1596/978-1-4648-1052-7

Elsevier. (2020) *University-industry collaboration: A closer look for research leaders*. Available at: https://www.elsevier.com/research-intelligence/university-industry-collaboration [Accessed: 26 April 2021].

Etzkowitz, H. (2003) "Innovation in Innovation: The Triple Helix of University-Industry- Government Relations", *Social Science Information*, 42, pp 293-338.

DOI: https://doi.org/10.1177/05390184030423002

Hamilton, C. & Philbin, S.P (2020) "Knowledge Based View of University Tech Transfer - A Systematic Literature Review and Meta-Analysis", *Administrative Sciences* 10(3), Article 62.

DOI: https://doi.org/10.3390/admsci10030062

Jose, G. (2013) *Promoting University-Industry Collaboration in Developing Countries*. DOI: https://dx.doi.org/10.13140/RG.2.1.5176.8488

Kurt, L., Bandara, D.C., Esham, M., & Unantenne, R. (2016) *Promoting University-Industry Collaboration in Sri Lanka Status, Case Studies, and Policy Options, Directions in Development Human Development*. [online] Available from : http://hdl.handle.net/10986/24540, [Accessed: 23 April 2021].

Lam, A. (2007) "Knowledge Networks and Careers: Academic Scientists in The Industry-University Links", *Journal of Management Studies*, 44(6), pp 993-1016.

DOI: https://doi.org/10.1111/j.1467-6486.2007.00696.x.

Malik, K. & Wickramasinghe, V. (2013) "International Technology Transfer and Its Impact on Innovation Enhancement for Firms Based in Sri Lanka", *Int. J. Technology Transfer and Commercialization*, 12(1/2/3), pp 8-21.

DOI: https://doi.org/10.1504/IJTTC.2013.064130

Marcus, H. & Aaboen, L. (2019) "A Literature Review of Intellectual Property Management in Technology Transfer Offices: From Appropriation to Utilization", *Technology in Society*, 59, Article 101132.

DOI: https://doi.org/10.1016/j.techsoc.2019.04.008

McDevitt, V.L., Mendez-Hinds, J., Winwood, D., Nijhawan, V., Sherer, T., Ritter, J.F., & Sanberg, P.R. (2014) 'More Than Money: The Exponential Impact of Academic Technology Transfer' *Technology and Innovation*,16(1), pp 75-84.

DOI:https://doi.org/10.3727%2F194982414X13971392823479.

Mendoza, X.P., López., D.S., & Sanchez, M. (2018) 'A Systematic Literature Review on Technology Transfer from University to Industry', *Int. J. Business and Systems Research*, 12(2), pp 197–225.

DOI: https://doi.org/10.1504/IJBSR.2018.090699

Mgonja, C.T. (2017) "Enhancing the University - Industry Collaboration in Developing Countries through Best Practices", *International Journal of Engineering Trends and Technology (IJETT)*, 50 (4), pp 216-225.

DOI: http://dx.doi.org/10.14445/22315381/IJETT-V50P235

Mom, T.J.M., Oshri, I., & Volberda, H.W. (2012) 'The Skills Base of Technology Transfer Professionals', *Technology Analysis and Strategic Management*, 24(9), pp 871-891.

DOI: https://doi.org/10.1080/09537325.2012.718663

Norman, G.A.V. & Eisenkot, R. (2017) 'Technology Transfer: From the Research Bench to Commercialization: Part 2: The Commercialization Process', *JACC: Basic to Translational Science*, 2(2), pp 197-208.

DOI: https://doi.org/10.1016/j.jacbts.2017.03.004.

OECD. (2019) *University-Industry Collaboration, New Evidence and Policy Options*. Paris: OECD Publishing.

Ramli, F., Lim, W.Y. & Senin, A.A. (2013) 'Proposing a Conceptual Framework on Factors to Develop Successful University Industry R&D Collaboration in Malaysia', *Jurnal Teknologi*, 64(2), pp 13-19.

DOI: https://doi.org/10.11113/jt.v64.2213.

Singh, V., Chakraborty, K. & Vincent, L. C. (2016) '*Patent Database: Their Importance in Prior Art Documentation and Patent Search*', *Journal of Intellectual Property Rights*, 21, pp 42-56.

Sri Lanka, Ministry of Education (2023) *Recognizing Successful Commercialization of University Research*. Colombo: Accelerating Higher Education Expansion and Development (AHEAD) Operation, Ministry of Education. ISBN 978-955-28-0087-0.

Svensson, R. (2012) 'Commercialization, Renewal and Quality of Patents', *Economics of Innovation and New Technology*, 21(2), pp 175-201.

DOI: https://doi.org/10.1080/10438599.2011.561996.

Tijssen, R., Lamers, W. & Yegros, A. (2017). *UK universities interacting with industry: patterns of research collaboration and inter-sectoral mobility of academic researchers.* Centre for Global Higher Education, UCL Institute of Education, London WC1H 0AL Working paper no. 14:35.

University Grants Commission, Sri Lanka (2022) *Selection of The Commercial Partners by Research and Innovation Teams at Universities and Start-Up AHEAD* (Circular No. 12/2022) [online] Available from:https://www.ugc.ac.lk/index.php?option=com_content&view=article&id=2389%3Acommission-circular-no-122022-selection-of-the-commercial-partners-by-research-and-innovation-teams-at-universities-and-start-up-ahead-&catid=185%3A-circulars-published-in-2022-012022-and-above&Itemid=20&lang=en [Accessed: 30 July 2022].

University Grants Commission, Sri Lanka (2022) *Payment of Research Allowance* (Establishment Circular No. 05/2014). [only] Available from: https://www.ugc.ac.lk/index.php?option=com_content&view=article&id=2387%3Aestab-circular-no-052014iii-payment-of-research allowance&catid=183%3A2022&Itemid=47&lang=en, [Accessed: 30 June 2022].

Valero, A. & Reenen, J.V. (2019) 'The Economic Impact of Universities: Evidence from Across the Globe', *Economics of Education Review*, 68, pp 53-67.
DOI: https://doi.org/10.1016/j.econedurev.2018.09.001

Webster E. & Jensen, P.H. (2011) 'Do Patents Matter for Commercialization?', *The Journal of Law and Economics*, 54(2), pp 431-453.
DOI: https://doi.org/10.1086/658487

WIPO (2022) *Technology and Innovation Support Centers* [online] Available from: https://www.wipo.int/tisc/en/ [Accessed: 30 June 2022].

Sri Lanka Journal of Social Sciences 2023 46 (2): 197-211
DOI: https://doi.org/10.4038/sljss.v46i02.8436

RESEARCH ARTICLE

Rigidity or fluidity? Does variety-seeking vary based on perceived threat during the COVID-19 pandemic?

Dewan Mehrab Ashrafi[1*], S.M. Mukit Chowdhury[2], Wardha Habiba[3], Shafayat Hossain Chowdhury[4], M. Sayeed Alam[1], Mashruha Zabeen[1] and Md. Atiqur Rahman Sarker[1]

[1]*Department of Business Administration, East West University, Bangladesh.*
[2]*Sapienza University of Rome, Italy.*
[3]*East Delta University, Bangladesh.*
[4]*Department of Business Administration, University of Liberal Arts Bangladesh (ULAB), Bangladesh.*

Abstract: The COVID-19 outbreak has significantly changed modern lifestyles and consumption patterns, prompting an increasing focus within consumer behavior research on exploring the impact of perceived threats and the quest for variety. In response to this exigency, our investigation endeavors to ascertain the correlation between the perceived threat posed by the coronavirus and the inclination towards seeking variety. Drawing upon established theoretical frameworks such as reactance theory and terror management theory, we aim to investigate if perceived threat of COVID-19 heightens individuals' propensity to seek greater variety in scenarios involving multiple choices. Our initial empirical investigations, conducted across two distinct studies, reveal an evident increase in individual tendency for variety-seeking in both stationery supplies and food items as their perceived threat from the disease intensifies. Furthermore, our third study underscores the nuanced nature of variety-seeking behavior under the influence of perceived threat, highlighting its modulation within predefined decision-making boundaries. Specifically, in situations characterised by heightened perceived threat, consumers exhibit a heightened tendency to seek variety among choices offered by different brands. Conversely, when presented with options within the same brand, their behavior diverges. Notably, this study highlights the intricate interplay between the perceived threat of COVID-19 and alterations in the pursuit of variety.

Keywords: Variety-seeking, COVID-19, consumer behavior.

INTRODUCTION

The COVID-19 pandemic has led to a metamorphosis of our usual lifestyle into what is commonly known as the "new normal" (Alam *et al*., 2023; Ashrafi & Easmin, 2023). Gong *et al*. (2023), Kirk & Rifkin (2020), Lim (2023), Sigala (2020), and Woodside (2020) observed that this shift has become increasingly evident in our routines and consumer habits, mainly in devoting more familial time due to lockdown or having a relaxing time on Netflix or online games. Another intriguing form of consumer behavior that was observed by the media was the inclination of the customers to try out unusual foods. Devlin (2020) highlights this pattern, which was unleashed in a survey where it was found that people, while adhering to the quarantine, were inclined by 45% to try out foods that they usually would not consume. The survey also found that there was a rise of 26% in the inclination of people to devour fancy and unconventional food delicacies. It was primarily these patterns that led to the idea of exploring the link between threats posed by COVID-19 and variety-seeking. In line with various theories such as the terror management theory (Greenberg *et al*., 1986), the reaction theory (Brehm, 1966), and the evolutionary theory (Hill *et al.,* 2015), it can thus be anticipated that the higher the presumed threats posed by COVID-19, the higher the chances for the consumer to choose between various alternatives of food delicacies and stationery and travel options.

* Corresponding author (mehrab.ashrafi35@gmail.com; https://orcid.org/0000-0001-9746-9654)

The adoption of reactance theory and terror management theory proved instrumental in comprehending variety-seeking behavior amid the pandemic (Matarazzo *et al*., 2023; Schindler *et al*., 2023). Reactance theory elucidates individuals' responses to constraints on freedom, aligning with pandemic-induced restrictions that might prompt individuals to seek variety as a means of reclaiming perceived autonomy (Brehm, 1966). Concurrently, Terror Management Theory explains how individuals navigate existential fears; heightened mortality concerns during the pandemic may drive individuals to seek varied options as a psychological defense mechanism, offering distraction and reaffirmation of life (Greenberg *et al*., 1986). Leveraging these theories establishes a robust foundation to explore how pandemic-induced constraints and existential threats influence variety-seeking behaviors, contributing significantly to understanding consumer behavior during crises.

Moreover, the impact of presumed threats posed on variety-seeking has been moderated by two other factors based on the patterns, namely, the selection of alternatives from various brands and also from that of the same brand. In consonance with Brehm & Brehm (1981) and Pyszczynski *et al.* (1999), it can be hypothesised that the higher people perceive the threat posed by COVID-19, the more they are likely to presume that their sense of independence, self-esteem, and control becomes narrow and constricted. Consistent with Levav & Zhu (2000) and Mandel & Smeesters (2008), as a result of this, they are more susceptible to pursuing a variety of other incoherent decisions to recondition their perception of independence, self-esteem, and control. Mandel & Smeesters (2008) opined that the factors of variety-seeking and reviving self-esteem are found to be nearly associated with one another. In like manner, Hill *et al.* (2015) have also opined that two other factors that may raise the levels of variety-seeking are the conventional state of mind and the strategic progression due to the pandemic. These factors will be explained further in the upcoming sections.

Potential theoretical and practical contributions of this paper are many. Firstly, it is appropriate and necessary to study our consumption patterns, taking into consideration the perils posed by the pandemic. Moreover, the effects of the pandemic on consumption patterns have been related to the factor of variety-seeking, thus providing an unprecedented empirical analysis of this aspect. Secondly, this paper exhaustively delineates the link between the threat of disease and variety-seeking and also the antecedent variables for high (vs. low) variety-seeking. These issues have not been given any attention in the literature. Thirdly and lastly, this paper extensively sheds light on the moderating effect of the variables for different types of alternatives or choices available by leveraging both theoretical and practical pieces of evidence and arguments. The practical implication of the moderating impact is that, as this paper enriches the comprehension of variety-seeking, marketing professionals and executives can effectively manage the sales of their products.

The following sections of the paper will delineate aspects of variety-seeking and disease threats with the aid of systematic analysis. Thereafter, contingent on the background theories, the main and moderating predictions will be devised.

Research objective

The research aims to achieve several key objectives within the realm of consumption patterns in the context of the COVID-19 pandemic. Firstly, it seeks to analyse consumption behaviors, specifically considering the impact of the pandemic on these patterns. Secondly, the study aims to empirically investigate and establish the relationship between the effects of the pandemic and the inclination towards variety-seeking behavior in consumers, presenting novel empirical analysis in this area. Thirdly, the research endeavors to delve into the connection between the perceived threat of disease and the tendencies towards variety-seeking behaviors, highlighting influential variables that have received limited attention in existing literature. Lastly, the study aims to explore and understand how choice types (choice within the same brand vs. choice across different brands) moderate the choices available in consumption behavior, particularly in the context of variety-seeking tendencies, contributing to a deeper comprehension of consumer decision-making processes.

LITERATURE REVIEW

Variety-seeking

Inman (2001), Menon & Kahn (1995), Ratner & Kahn (2002), Ratner *et al*. (1999), Scriven *et al*. (2017), Post *et al*. (2023), and Streletskaya *et al*. (2023) opine that past studies reveal a pattern where customers are found to seek variety and, as a result, become more determined to choose products that are usually least preferential. Practical evidence has been found that supports this fact (Ratner *et al*., 1999). In an experiment, individuals were tasked with assessing their experience of listening to a variety of songs. Based on the perceptions and experiences of the individuals, it was found that there was a fall in the extent to which the individuals enjoyed listening to the favorite songs played repeatedly, followed by the songs that were played in a mixed sequence. Conforming to this, it can be assumed that the assessment of consumption experiences can be heightened by involving fewer preferred products in a setting where there are multiple alternatives to be chosen from.

Drolet (2002), Kim & Drolet (2003), Mittelman *et al*. (2014), and Menidjel *et al*. (2023) have observed that variety-seeking primarily transpires based on what items customers choose and how they do it. Drolet (2002) argues that this phenomenon continues to draw attention to decision processes as well. This was further leveraged in an experiment that she conducted where individuals were given the task of making three sets of choices between a low-quality/low-price option and a high-quality/high-price option. The outcome of her experiments unleashed an interesting pattern, where individuals who selected the low-quality/low-price option [high-quality/high-price option] in the first two choices were likely to select the high-quality/high-price option as their third choice. Concisely, it can be deemed that customers are more susceptible to altering their utilisation of decision processes and rules. In the same perspective, there was another observation in which customers belonging to an individualistic cultural setting are more likely to possess a stronger sense of variety-seeking in their choice rules than those belonging to a collectivistic cultural setting (Kim & Drolet, 2003). On the contrary, if the decision outcome turns out to be alike, that encourages customers to alter their decision processes (Mittelman *et al*., 2014). In the fewest possible words, the phenomenon of variety-seeking can transpire in both decision processes and decision outcomes.

Prior studies conducted in these aspects also establish interpretations for variety-seeking. Firstly, McAlister (1982) and Sevilla *et al*. (2019) contend that one of the means of cutting down on satiation is variety-seeking. Satiation is comprised of a choice process and a choice outcome. Secondly, Kahn & Lehmann (1991) and Ariely & Levav (2000) surmise that the ambiguity related to future choices and information collection can be reduced by variety-seeking. Thirdly, Ratner *et al.* (1999) and Ariely & Levav (2000) deduce that variety-seeking is strengthened by past affirmative experiences of choosing a varied sequence. This implies that most of the time, customers pursue variety to boost their satisfaction with various encounters. Fourthly, another means of variety-seeking as identified by Ratner & Kahn (2002) is through interpersonal influence or the need for one to present themselves most finely. This is leveraged by the fact that the phenomenon of variety-seeking was found to be more evident and recurring in public consumption situations than in a private setting. This is because of the customer's intent to present and appear in their finest versions in public. Additionally, Levav & Zhu (2009) and Yoon & Kim (2018) put forward that an individual can reinforce his perceptions of freedom and control using variety-seeking. It is believed by Levav & Zhu (2009) that when the decisions to be taken were bound to the physical specifications, the extent of variety-seeking in those situations was high. Likewise, another observation revealed that customers with lower levels of economic mobility exhibited patterns of variety-seeking to a great extent (Yoon & Kim, 2018). Other academicians such as Read & Loewenstein (1995), Simonson (1990), Simonson & Winer (1992), and O'Donnell *et al.* (2023) have also ascertained that in situations where there are higher levels of simultaneous choice than separate choice, the levels of variety-seeking exhibited are high. The variety of choices a customer can make could be impacted by the number of choices and alternatives the customer has to decide upon at a given time (Simonson, 1990). The individuals who took part in the experiment were given the task of choosing between two options, one of which was a simultaneous-choice condition, and the other was a sequential-choice condition. It was then noted that individuals who choose a simultaneous-choice condition are highly susceptible to exhibiting the phenomenon of variety-seeking. All these aspects, as found in the literature, stress the crucial role exercised by the phenomenon of variety-seeking. This study thus pays particular attention to the influence the disease threat posed by COVID-19, has on the phenomenon of variety-seeking.

Perception of disease threat

Murray & Schaller (2010), Navarrete & Fessler (2006), Schaller & Park (2011), and Wu & Chang (2012) articulate that pathogenic agents and microorganisms can trigger both latent and unambiguous impacts on humans. In this aspect, Altizer *et al*. (2003), Roy & Kirchner (2000), and Wang *et al.* (2023) have also shed light, stating the importance of the impact on surviving the COVID-19 threat. Slovic *et al*. (1980) and Tomaka *et al.* (1993) stressed more on nurturing subjective comprehension of the perils posed by the disease than on nurturing an objective mode of comprehension. It was further claimed by Tomaka *et al.* (1993) that a subjective assessment of the perils or threats posed could impact the mechanisms that consumers would adapt to be able to combat the disease. Perceived vulnerability to disease (PVD), comprising perceived infectability and germ aversion tendencies, was initially suggested by Duncan *et al.* (2009) by putting the subjective assessment of the threats into consideration. PVD entailed that the differences at an individual level were considered in the cases of different diseases. Furthermore, it was also noted that individual differences in the perception of the perils and threats posed can impact the resulting changes that may occur. Hogg & Mullin (1999) and Van den Bos (2001) signify that the high presumed threat of disease accounts for the fact that people with precariousness and apprehension regarding the perils posed by the diseases are highly susceptible to exhibit behavior patterns that emphasize formulating courses of action to alleviate the threat. More often than not, such behavioral patterns demonstrate exaggeration as a response to the threats posed or the implementation of unreasonable courses of action in the pandemic. Nicola *et al.* (2020) and Wong *et al.* (2020) believe that over-accumulation and amassment of day-to-day necessities, for instance, was a problem that was prevalent in the initial phases of the pandemic.

It has become even more important to have a clear understanding of the perils related to COVID-19, as this regulates the behavioral patterns of the customers (Alam *et al*., 2023). Interestingly, many factors can aid in altering the understanding that resides in the minds of the customers. Goodwin *et al.* (2005) and Godleski *et al*. (2023) found that women are more susceptible to panic and anxiety as a response to the perils posed by the pandemic in comparison to men. Davis & McDonald (2004) opine that this sense of apprehension can be diminished by cultivating meaningful kinships with family members. The impact of the information provided by public service advertisements (PSAs) on the intention of the customers to amass goods and their perception of the threat (Kim *et al*., 2020). The studies revealed that the more information provided to the customers, the more customers have a relaxed perception regarding the threats posed and the more likely they are to not amass goods and necessities.

We have found the aspects of perils posed by the pandemic, disease, apprehension of the disease, and its impact on consumer consumption patterns to be discussed in the previous studies. To put it succinctly, the influence of the perils and threats posed by the pandemic (COVID-19) on the consumption practices of customers in connection with their propensities to seek variety. The forthcoming sections will endeavor to explicate the main and moderating hypotheses of the study.

Core assumption: the effect of the cognised threat on variety-seeking

Based on numerous theories, we argue that the threat associated with COVID-19 may have a positive impact on variety-seeking. Firstly, the idea of seeking more freedom while facing more restriction may have an influence on seeking more variety when someone is facing a more cognisant threat. The reaction theory (Brehm, 1966; Brehm & Brehm, 1981) says that people become more motivated to widen their freedom and regain their power of control when their freedom and control power are restrained. The COVID-19 pandemic, for example, is forcing people to stay isolated and pushing them into a unique situation where they are facing restrictions in many socio-activities. The reactance theory says that when people possess a belief that they are open to exercising any particular behavior, and if that freedom is somehow hampered or is at stake, they will produce psychological reactions to re-establish the diminished freedom. So, the psychological reaction of an individual is the step taken by the individual to regain his or her freedom. The other outcome is the incremental change in preference due to threatened behaviors. When the freedom of choosing something is threatened, people start to demand it more than they would before (Brehm & Brehm, 1981). Also, we saw earlier that looking for more variety is very much related to someone enjoying more freedom and ability to control (Levav & Zhu, 2009; Yoon & Kim, 2018). In light of this, the reactance theory proposes that people will look for more variety when their lives and free activities are restricted. Secondly, the terror management theory (Greenberg *et al.,* 1986; Pyszczynski *et al*., 1999; Pyszczynski *et al*., 2004) says that people with a higher realisation of their deaths are more motivated to exercise their self-esteem. As we know, seeking variety and self-esteem restoration are closely connected (e.g., Mandel & Smeesters, 2008), so we can assume that the thought of a higher threat will encourage more variety-seeking.

Moreover, Huang & Wyer (2015) and Hernández-Fernández & Meneses-Falcón (2022) predict a similar sort of assumption with the assumption that death is abstract, as people who are living have not experienced it yet. When construal is abstract (e.g., Kahn & Isen, 1993; Laran, 2010), people tend to seek more variety in such situations. Huang & Wyer (2015) demonstrated that the rise of quantity in society can lead to a rise in variety-seeking, especially in situations where consumption is rather unrelated. Hence, it is assumed that the COVID-19 threat will cause a rise in variety-seeking in consumption domains that are not necessarily related to health. Lastly, an evolutionary perspective also supports such a phenomenon, as variety-seeking is considered an evolutionary tool to increase the survival ratio when the perceived threat of disease is high (Altizer *et al*., 2003; Hill *et al*., 2015; Roy & Kirchner, 2000; Yap & Kapitan, 2017). As an example, women chose multiple partners to sleep within a situation with a higher threat of disease, according to empirical evidence provided by Hill *et al*. (2015). If we can summarise the basis of these theories, we assume a positive impact of the cognised threat of novel coronaviruses as far as variety-seeking is concerned. So the proposed hypothesis is:

H1: Variety-seeking tendency is higher when cognised threat of COVID-19 is high.

Moderating impact of the choice-type

Although we assume that a higher COVID-19 threat level results in higher variety-seeking, the reverse pattern can also be observed. Studies show that people display adherence to conformity or prioritize stability whenever their self-identity is under threat. For instance, when disease-related threats are on the rise, people focus more on familiar objects (in-groups) and avoid new objects (out-groups) (Navarrete *et al*., 2007; Wu & Chang, 2012). In the arena of food, Finkelstein *et al*. (2019) demonstrated a proven example: while selecting a chocolate bar, variety-seeking gets lower if the self-concept-confirming tendency is generated by a higher relational threat. Lastly, Huang & Wyer (2015) predicted that disease-related anxiety motivates for more stability, which has a connection with focusing on current preferences and ultimately results in lower variety-seeking. These above studies show the contradictory pattern of H1, mostly because of the preference-confirming strategy.

We would like to propose a slightly moderated variable for decision, depending on the effect of the cognised threat on variety-seeking. More precisely, freedom is likely to be considered very important when choosing among multiple options for separate brands. For instance, Levav & Zhu (2009) mentioned all the decisions in the study, which were multiple decisions from multiple brands. Considering this, we set our assumption that high cognised threats will promote higher variety-seeking, largely due to the aspiration for personal freedom.

However, as far as options from the same brand go (such as choosing from the same brand but with multiple flavors), preference for multiple flavors becomes more important than freedom of choice. To illustrate it further, Inman (2001) showed in his research that variety in flavor had a strong relationship with sensory-specific satisfaction, which is not deeply related to seeking freedom but preference (McAlister, 1982; Sevilla *et al*., 2019). Again, Huang & Wyer (2015) suggested that firm constructions ensure low variety-seeking. Decisions among multiple flavor options are more firm than decisions among multiple brands. Hence, it can be assumed that if the cognised threat of disease is high, variety-seeking will be reduced since people will choose from their existing preferences. This leads us to generate two separate decisions, opposite to each other as far as the impact of cognised threats on variety-seeking goes. Thus, the hypothesis is:

H2: The cognized threat of COVID-19 will vary depending on choice. More elaborately, as long as the cognised threat of COVID-19 remains high, for choice among different brands, the tendency of variety-seeking is high and, for choice from the same brand, the tendency of variety-seeking is low.

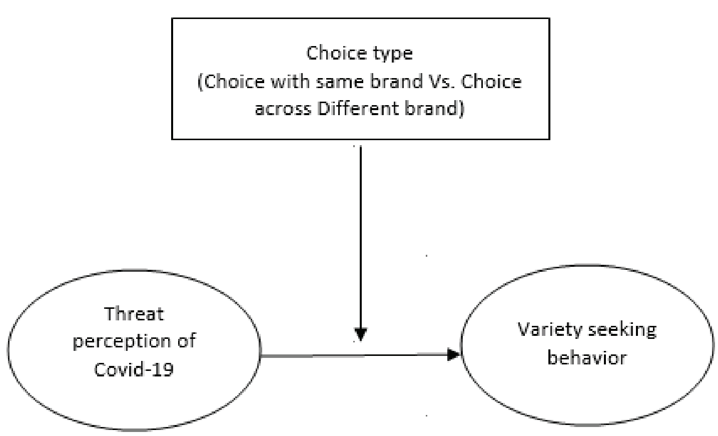


Figure 1: Theoretical framework (Kim, 2020)

The theoretical framework is depicted in fig. 1. The following sections, three empirical studies will be explained to illustrate the pivotal impacts (studies 1-2) and moderating impact (study 3) among different decision scenarios.

METHODOLOGY

Study 1: Testing the main hypothesis of the study (H1)

This study aimed to test the primary association between perceived COVID-19 threat and Variety-seeking. According to Roehm Jr. & Roehm (2005) and Kim *et al.* (2022), mood can significantly influence an individual's variety-seeking behavior, and hence, for this study, the mood variable was controlled and measured. Besides, this study considered age as a control variable. This is because participants' preferences for candy bars are highly connected to their age.

Research design and procedure

This study was based on 100 adults from Bangladesh, out of whom 63 were male and 37 were female. It is important to mention that a nominal remuneration was given to them for participating in the study. In the first study, the respondents were asked to imagine that they were in a supermarket and wanted to have candy bars. They were also shown five separate chocolate candy bar brands (Finkelstein *et al*., 2019) and were asked to pick five candy bars in their preferred combination (in any way they liked). After that, the respondents received information related to the COVID-19 case in Bangladesh. For example, they were exposed to information about how many people were affected by COVID-19 in Bangladesh, how many death cases were reported, and how many people recovered after being affected by Covid-19. They were exposed to the information during the survey in the month of June 2020. For this study, the respondents were asked how they would like to rate their perceived threat of Covid-19. Participants were given statements like, "How deadly is COVID-19 to you? Do you think COVID-19 is a serious threat?" and their responses were obtained through two items based on a 7-point scale (Kim et *al*., 2020), where 1 denoted 'not at all serious' while 7 represented 'very serious" (Cronbach alpha = 0.817). Lastly, respondents revealed their demographic information and rated the way they perceived their mood during that specific time period on a 7-point scale, where 1 was denoted as 'very bad' while 7 represented 'very good'.

Results

In the beginning, an index for variety-seeking was generated by calculating the number of different brands in the respondents' five-choices. Additionally, a regression analysis was performed where the independent variables were mood, age, and perceived Covid-19 threat while the dependent variable was Variety-seeking. The regression model ($R^2 = 0.072$) was found to be significant (Cohen's $f^2 = 0.217$, F (3,96) = 3.72, p = .036). Results and showed that the Variety-seeking is negatively impacted (β= −0.34, $t = -3.73$, $p = 0.025$) by age. On the other hand, results have shown that an individual's mood didn't have any influence (t =1.73, p = 0.272) on Variety-seeking. Nevertheless, with regard to the positive effect on variety-seeking, research results indicated that the perceived threat had a marginal significance (β= 0.203, t = 1.89, p = 0.052). As anticipated in H1, respondent's Variety-seeking in choosing candy bars was augmented by higher perceived threat. Lastly, another regression analysis was performed whereby perceived risk has been considered as a single independent variable and results demonstrated that the findings were identical to the previous result. Research results showed that Variety-seeking was positively impacted (Cohen's f^2, 0.035, β= 0.235, t = 1.72, p = 0.079) by perceived threat (Adjusted $R^2 = 0.032$). Therefore, as anticipated, results supported the primary hypothesis, H1.

Study 2: Replicating Study 1 with two different tasks

The results of Study 1 revealed that if people perceive the threat to be of a greater degree, they appear to exhibit a higher variety-seeking behavior to heighten their feelings of control and freedom. Hence, for doing this, individuals will make an attempt to adjust and modify their established likings by choosing items that are less preferred by them. For the purpose of the study, the previous studies were replicated in order to assess the association between decreased preferences and the high variety of seeing behaviors demonstrated by participants. Mittelman *et al.* (2014) suggest that the number of options and choices available to an individual impacts their decision-making related to variety-seeking. In past studies, variety-seeking measurements were based on multiple selections; however, in this study, another method of measuring variety-seeking was applied. The respondents were asked to choose only one option out of multiple options. This means respondents could only select one option out of a wide variety of options. Moreover, the man hypothesis was assessed based on two choice problems. Nevertheless, with a view to making statistical comparisons with perceived threats, the perceived vulnerability to disease was measured (Duncan *et al*., 2009).

Research design and procedure

Respondents in this study were 107 adults from Bangladesh, out of whom 50 were male and 57 were female, and they were provided with nominal remuneration for participating in the study. The procedure adapted for this study is identical to study 1. However, a small number of alterations have been made. The respondents were given information related to COVID-19, and their perceptions regarding the perceived COVID-19 threat were rated based on two items on a 7-point Likert scale (Cronbach's $\alpha = 0.825$). Moreover, respondents were asked to presume that they were at a supermarket and had been shown five different soft drink brands. Following McAlister's (1982) procedure, respondents were asked to choose five soft drink brands in any order they desired. However, due to product availability issues, "Dr. Pepper" was replaced with the brand "Mirinda". When the respondents were done with the selection of the five soft drink brands, they were assigned another task: choosing five highlighter pens from two distinct brands. Overall, respondents had to pick only one option out of six separate combinations. Respondents were asked to express their perceived vulnerability to diseases based on a 7-point scale. However, it is important to mention that the perceived vulnerability to disease (PVD) was comprised of seven items (Duncan *et al.,* 2009), and lastly, respondents were told to share their general attitude toward the five separate soft drink brands. The opinions of respondents were obtained using a 7-point scale, where 1 was denoted as 'not much' and 7 represented 'very much'.

Soda choice results

The variety-seeking index was generated by calculating the number of distinctive brands offered in the five soft drink selections/choices. Considering variety-seeking as the dependent variable and perceived threat as the independent variable, a regression analysis was conducted, which showed the regression model ($R^2 = 0.027$, $f^2 = 0.025$, F (1.192) = 7.82) to be significant (p value = .004). It was revealed that the variety-seeking was positively influenced by perceived threat ($p = 0.023$, $t = 3.65$, $\beta = 0.297$). However, with the inclusion of another independent variable called "perceived vulnerability to disease" in the regression model, similar results were observed and the regression model was Adjusted $R^2 = 0.038$, $f^2 = 0.0545$, F (1, 192 = 6.11) found significant (p value = .006). Findings also showed variety-seeking ($\beta = 0.125$) was marginally (positively) influenced by perceived vulnerability to disease ($t = 1.23$, $p = 0.082$). On the contrary, a positive impact of perceived threat on variety-seeking was observed and therefore, in line with the result of study 1, H1 was supported. Furthermore, depending on the overall attitude of respondents for each of the soda brands, index 1 was generated by calculating the mean of respondents' five general attitudes for each of the brands. Additionally, index 2 was generated by multiplying the overall attitude towards a brand with the number of that specific brand chosen. Index 2 refers to the inferred utility for the selected option combinations (Kim, 2020). Then, index 1 was divided by index 2 to develop a preference-based variety-seeking index. The higher number indicates the selection of brands that respondents liked and preferred the least. Finally, another regression analysis has been performed by considering preference-based variety-seeking index as dependent variable and perceived threat as independent variable. According to the study results, the regression model (Adjusted $R^2 = 0.023$) was found to be significant (f 2 = 0.0275, F (1,192) = 6.32, p = 0.003) and respondents' perception of threat ($\beta = 0.245$) was revealed to have a significant positive effect ($t = 4.58$, $p = 0.021$) on variety-seeking. Hence, the findings supported the prediction that individuals who perceive a higher COVID-19 threat tend to demonstrate a higher level of variety-seeking behavior by changing their preferred choices.

Pen choice results

The respondents were presented with two distinctive pen brands and were instructed to select the pens from the given six different combinations. The choice combinations were re-categorised as high variety-seeking, low variety-seeking and medium variety-seeking. Low variety-seeking is considered as choosing all the same brands while high variety-seeking refers to the selection of two or three pens from separate brands. However, medium variety seekers are considered as respondents who, with the exception of one option, have selected all the same brands. Finally, by considering perceived threat and variety-seeking as the independent and dependent variables, another regression analysis was performed and study results indicated the regression model (Adjusted $R^2 = 0.014$) to be significant (f 2 = 0.0321, F (1,192) = 5.23,p = 0.038. Therefore, it is evident that respondents' variety-seeking tendency is positively influenced by their perceived threat of COVID-19 ($\beta = 0.21$, $t = 3.42$, $p = 0.023$) which supported H1.

Study 3: Moderating impact of different types of choices (H2)

To identify the impact of an individual's perceived COVID-19 threat on variety-seeking, the moderating effect of different types of choices was examined. To summarise, when the decision involved selecting across separate brands, it was expected to replicate the previous studies for multiple option selections. Contrarily, for the decision that involves selecting between distinct flavors of the same brand, the opposite trend was expected.

Research design and procedure

Respondents on this study were 107 Adults from Bangladesh out of which 50 were male while 57 were female and they were provided with nominal remuneration for participating in the study. Respondents, by employing a between-subject design,' were allocated and assigned randomly to one of two experimental settings (selecting across different brands vs. selecting within the same brand). The respondents received information related to the COVID-19 case in Bangladesh. For example, they were exposed to information about how many people were affected by COVID-19 in Bangladesh, how many death cases were reported, and how many people recovered after being affected by COVID-19, like in Study 1. They were also required to rate their perception (on a 7-point Likert scale) of the COVID-19 threat based on the same two items (Cronbach's $\alpha = 0.752$) used in both studies 1 and study 2. In line with Study 1, respondents were again asked to select five separate candy bars. Nevertheless, a different sort of selection task was implemented, and respondents who were in the study to select between different brands were exposed to the same selection options, similar to study 1 (where they were shown five different brands; see figure 2). Respondents, who were in the study of selecting within the brand, were presented with a new condition where the five options belonged to the same brand (Cadbury Dairy Milk) and respondents were required to choose from different flavors from that existing brand (see Figure 2).

RESULTS AND DISCUSSION

Like study 1, the variety-seeking index was generated by calculating the number of those different brands offered in the five soft drink selections/choices followed by a moderation test, by using the process analysis of Hayes (2017), for different types of choices. The model included type of choice task as moderator. Perceived threat and variety-seeking was included as an independent and dependent variable respectively with a bootstrapping of 5000. The study showed a significant ($t = 3.18$, $p = 0.03$, 95% CI: [0.045, 0.058]) interaction effect (effect = 1.19) and therefore, supported H2. In the situation and condition of selecting between different brands, result is consistent with the previous finding indicating that an individual's higher level of COVID-19 risk perception positively impacts variety-seeking. Therefore, respondents perceiving higher level of risk demonstrated higher level (estimated mean= 2.83) of variety-seeking compared to those respondents who reported lower level (estimated mean= 2.47, p= 0.091) of perceived risk.

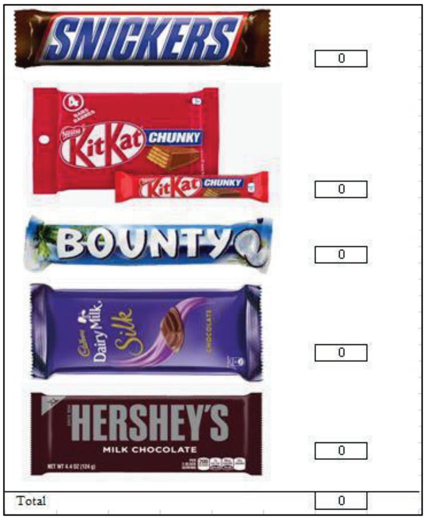
Conversely, the pattern was entirely opposite in the situation where respondents were required to choose products from the same brand (within the same brand). Results suggested that, as reported in figure 4, respondents having higher level of perceived risk showed lower level (estimated mean= 2.53) of variety-seeking in comparison to the respondents who reported lower level (estimated mean= 3.12, p = 0.007) of perceived risk.

DISCUSSION

Summary of the studies

The study kept the association between perceived threat COVID-19 and variety-seeking as a focal point, and through the lens of terror management theory and reactance theory, it was predicted that consumers would seek more variety when they are presented with multiple options to choose from. In other words, consumers with a higher level of perceived risk would demonstrate a higher variety-seeking behavior. This paper presented three studies that tested the effect of the perceived threat of COVID-19 on an individual's variety-seeking tendency. The first study, which however excluded the mood factor, showed that the increase in perceived COVID-19 threat resulted in an increased level of variety-seeking tendency when respondents were presented with chocolate candy bars (Study 1). Study 2 found an identical impact on the choice of non-food (highlighter pens) and food (soda) related items. The study also demonstrated that preference-based decisions did not influence the respondent's tendency to exhibit a higher level of variety-seeking associated with the perceived level of COVID-19 threat. Therefore, it indicates that their drive for independence and sense of control plays an important role in their motivation. Nevertheless, despite being provided with multiple-choice actions, the respondent's high inclination towards variety-seeking was observed. Study 3 showed that different decision tasks (choosing from different brands vs. within the same brand) significantly moderated the impact of perceived levels of COVID-19 threat on variety-seeking. Participants with a higher level of perceived COVID-19 threat showed a higher level of variety-seeking when they were required to choose products across different brands. Contrarily, the opposite pattern was observed when participants were required to select products within the same brand.

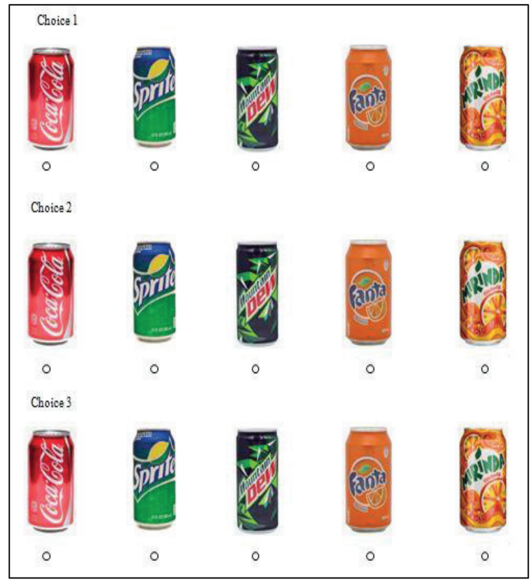
Stimuli for study 1 and study 3



Decision within the same brand

Figure 2: Stimuli for Study 1 & Study 3
Decision across Different Brands (Studies 1 & 3)
Decision within the Same Brand (Study 3)

Stimuli for study 1 and study 3



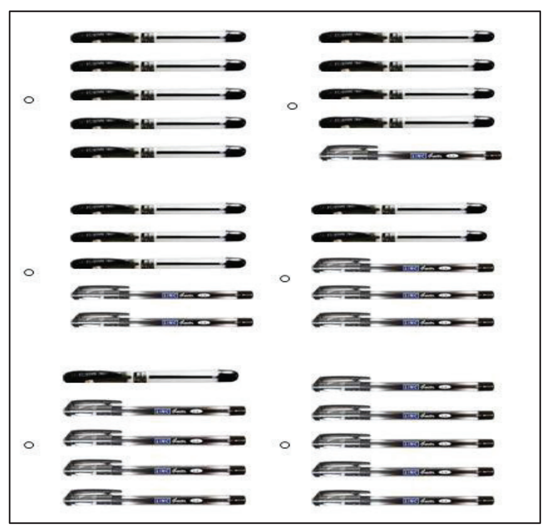


Figure 3: Stimuli for Study 2 (Soda & Pen Choice)

Conceptual & Empirical Contributions

The above findings mark several notable conceptual contributions. Firstly, this study demonstrates the literature related to the threat information process as well as the outcome of threat cognisance. Past literature has recommended that human behaviors like xenophobia (Faulkner *et al.,* 2004), mating strategy (Hill *et al.,* 2015), ethnocentrism (Navarrete & Fessler, 2006), conformity tendencies (Wu & Chang, 2012), and anti-social behavior (Park *et al.,* 2003) can be significantly influenced by the pandemic disease threat. This study, however, suggests a new outcome of disease threat in multiple-choice circumstances. More specifically, different levels of cognised threat can influence buying patterns in multiple-choice circumstances.

Secondly, this study broadens the horizons of understanding on variety-seeking. Current literature on the predecessors of variety-seeking focuses mainly on individual components like satisfaction level and individual motivation like maximisation of retrospective

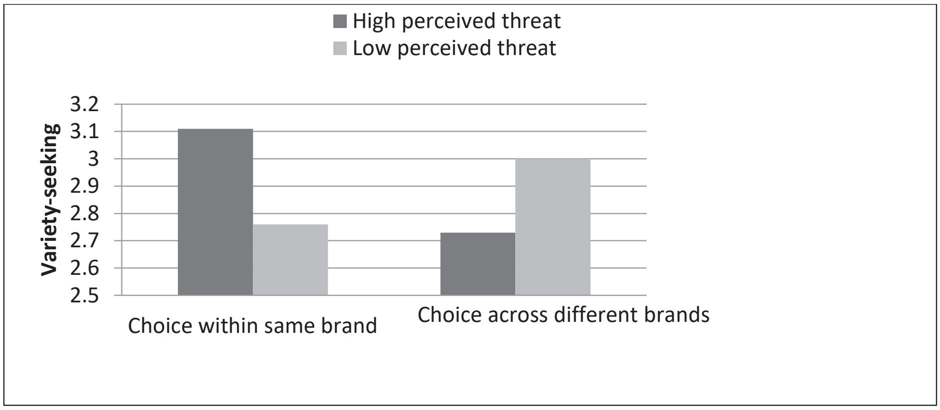


Figure 4: Results of study 3

Table 1: Summary of the results

Study	Type of Item	Impact of Perceived COVID-19 Threat on Variety-seeking	Additional Insights
Study 1	Chocolate Candy Bars	Increase in perceived COVID-19 threat led to higher Variety-seeking tendency in chocolate candy bar choices.	Mood factor was excluded.
Study 2	Highlighter Pens, Soda	Extension of Study 1; Similar impact observed in non-food (highlighter pens) and food (soda) choices.	Preference-based decisions did not influence variety-seeking associated with perceived COVID-19 threat. Drive for independence and control seemed key motivators.
Study 3	Different vs. Same Brand	Perceived COVID-19 threat impact moderated by choice tasks: Higher threat linked to more Variety-seeking when choosing across different brands.	Opposite trend observed when choosing within the same brand. Importance of choice tasks in moderating perceived threat's effect on Variety-seeking was highlighted.

experiences (Ratner *et al.,* 1999) or minimising the later regret probability regret (Ariely & Levav, 2000). Previous studies, however, disregarded the environmental and social elements. This study has emphasised more on the concept of the COVID-19 threat on the global horizon. More specifically, we state that the cognized threat of COVID-19 significantly outlines the tendency toward variety-seeking. This paper additionally suggests a new predecessor for variety-seeking, which is the cognised threat level.

Thirdly, although we conceptualized a cause-and-effect relationship between variety-seeking and threat perception (threat perception -> variety-seeking), the other way around scenario (variety-seeking -> threat perception) is also possible. Unlike most other empirical studies where the independent variable (IV) is directly manipulated, we measured the two constructs at a time. Regardless, this alternative perspective can be excluded for a couple of reasons. One, variety-seeking is measured by measuring the threat perception level in all studies, which makes it difficult to perceive whether the choice action of variety-seeking influenced the threat perception or not. Second, this alternative model is unable to fully explain the significant effect of moderating the various decision tasks in Study 3.

Fourthly, study 2 shows that cognised vulnerability to disease (PVD) and the cognized disease threat were impactful for variety-seeking (Duncan *et al*., 2009). This result suggests that the PVD and the perceived threat are separate constructs that have different and additional impacts on variety-seeking. However, future studies are required to examine the dissimilarity between perceived threat level and PVD. Fifthly, the findings of this study are somewhat similar to those of recently published articles related to responses to disease (Galoni *et al.,* 2020; Huang & Sengupta, 2020). More specifically, Galoni *et al.* (2020) suggested that a negative emotional reaction (e.g., disgust or fear) may be activated by the salience of transmissible disease cues. Subsequently, preference for familiar options is influenced by such emotional responses. On the contrary, Huang & Sengupta (2020) provided practical evidence that disease cues may lessen typical options for products. The findings in Galoni *et al.* (2020) are contradictory to ours in that selecting a familiar option indicates a low variety-seeking level. However, our study possesses a different decision structure (i.e., choosing one option versus multiple options) compared to the existing literature. The concept of selecting multiple options in the research paper should allow the participants to look for variety to regain their restricted self-esteem or freedom. On the other hand, participants may look for a familiar option when disease salience is high. However, future research is required to integrate both findings. Finally, higher variety-seeking under a higher cognised treatment level could be translated as a risk minimisation strategy. That is, people tend to select more than one option in order to minimise the chance of selecting the same option. Although such a phenomenon is possible, such a pattern could occur when the choosing criteria are rather known (vs. unknown). As we worked with the participants with decision options that were familiar to them (such as soda, pen, or chocolate candy), the alternative explanation remained weak.

Several managerial as well as practical implications are also suggested by the result of this study. First and foremost, this study gives a direct message to retailers and marketing managers that allowing consumers to go for variety is a better marketing tactic in the COVID-19 situation. For instance, online and offline stores should offer a variety of products or brands to their core target customers. Secondly, Study 3 provides a couple of product strategies for brand managers as long as the pandemic goes. More precisely, the brand managers could change the offerings for their target customers and thus maximise profit. Lastly, while ensuring the highest level of social constraints, most of countries are required to find actual ways to reduce the psychological and social costs of continuing the lockdown situation and social distancing. Our report further suggests that offering multiple-choice options can be considered one of the most effective methods to reduce the negative impact of social barriers. Our society can be largely benefited if people can minimise the bitter feeling of the limitation of freedom simply by choosing from multiple options. Our report provides policymakers with several empirical implications for controlling the disease while minimising the psychological tension of rigorous social distancing.

Limitations and proposals for future studies

This paper, however, has some limitations; hence, it suggests opportunities for further research. Firstly, although this study largely focused on the impacts due to other diseases or disasters could affect the variety-seeking similarly. Such other scenarios could be investigated in future studies. Secondly, the location and timing of collecting data could influence the result (i.e., we did the studies from April until June 2020). Future research in a different country and time can ensure greater validity for the questions that are mentioned in this study. Thirdly, due to the lockdown, we could only use online platforms to find the results of the empirical studies. Although the authenticity of online platforms is well established (e.g., Casler *et al*., 2013; Kim & Kim, 2016; Kim & Seo, 2019), our main argument needs to be verified by using different samples, such as students. Additionally, a few different mechanisms for Hypothesis 1 were suggested in the theory section. Although study 3 results did second the mechanisms of freedom and the feeling of restoring control, the other mechanisms could not be excluded since we did not test these arbitrators in the present practical package. Further study is needed to provide accurate evidence, such as by conducting meditation and measuring mediators (Kim *et al.,* 2018; 2019). Lastly, further research could broaden the variety-seeking propensity of making decisions for others (Choi *et al*., 2006) or group-level variety-seeking tendencies (Ariely & Levav, 2000; Lee *et al*., 2018).

CONCLUSION

The study systematically addressed its outlined research objectives concerning consumption patterns amidst the backdrop of the COVID-19 pandemic. Initially, it rigorously examined consumption behaviors, specifically contextualising and assessing the pandemic's pronounced impact on these behavioral patterns. This investigation provided crucial insights into the shifting paradigms of consumer choices amid the pandemic's disruptive influence. Subsequently, through robust empirical inquiry, the research substantiated a significant and discernible relationship between the pandemic's ramifications and consumers' proclivity toward variety-seeking behaviors. This comprehensive empirical analysis encompassed diverse consumer items—ranging from chocolate candy bars to highlighter pens and soda—revealing a consistent trend of heightened variety-seeking tendencies in response to escalated perceived threats of COVID-19. Additionally, the study meticulously explored the intricate nexus between the perceived threat of disease and the nuanced variables influencing variety-seeking behaviors, thereby uncovering novel dimensions that had been previously overlooked in extant literature. Lastly, the research adeptly highlighted the moderating role of distinct choice types—within the same brand versus across different brands—on consumption behavior and the manifestation of variety-seeking inclinations. This nuanced exploration unveiled the pivotal interplay between perceived threat levels and variety-seeking, distinctly influenced by the nature of the choice tasks, thereby significantly augmenting our comprehension of consumer decision-making dynamics within pandemic contexts. In summary, the study accomplished its objectives by offering comprehensive insights into the complex interrelationships among the pandemic, perceived threats, and consumer behavior, thereby contributing significantly to the field's knowledge base.

REFERENCES

Alam, I., Ashrafi, D. M. & Kabir, M. R. (2023) "Buy or Die: An Investigation of Consumers' Intention to Engage in Unusual Purchasing Behavior through the Lens of Stimulus-Organism-Response Approach". *Malaysian Journal of Consumer and Family Economics*, 30, pp: 324–363.

Altizer, S., Harvell, D. & Friedle, E. (2003) "Rapid evolutionary dynamics and disease threats to biodiversity", *Trends in Ecology and Evolution*, Elsevier Ltd, 1 November.

Ariely, D. & Levav, J. (2000) "Sequential Choice in Group Settings: Taking the Road Less Traveled and Less Enjoyed", *Journal of Consumer Research*, University of Chicago Press, 27(3), pp: 279–290.

Ashrafi, D. M. & Easmin, R. (2023) "The Role of Innovation Resistance and Technology Readiness in the Adoption of QR Code Payments among Digital Natives: A Serial Moderated Mediation Model". *International Journal of Business Science & Applied Management* 18 (1), pp: 19-45.

Böhm, G. & Pfister, H.R. (2005) "Consequences, morality, and time in environmental risk evaluation", *Journal of Risk Research*, 8, Taylor & Francis Group , pp: 461–479.

Van Den Bos, K. (2001) "Uncertainty management: The influence of uncertainty salience on reactions to perceived procedural fairness", *Journal of Personality and Social Psychology*, American Psychological Association Inc., 80(6), pp: 931–941.

Brehm, S.S. & Brehm, J.W.(1981) *Psychological Reactance: A Theory of Freedom and Control*, Academic Press, New York.

Brehm, J.W. (1966) A Theory of Psychological Reactance. [online] Available from: https://philpapers.org/rec/BREATO-2. [Accessed: 4 March 2021].

Casler, K., Bickel, L. & Hackett, E. (2013) Separate but equal? A comparison of participants and data gathered via Amazon's MTurk, social media, and face-to-face behavioral testing, *Computers in Human Behavior*, Pergamon, 29(6), pp: 2156–2160.

Choi, J., Kim, B.K., Choi, I. & Yi, Y. (2006) Variety-Seeking Tendency in Choice for Others: Interpersonal and Intrapersonal Causes, *Journal of Consumer Research*, Oxford Academic, 32(4), pp: 590–595.

Davis, C.G. & Macdonald, S.L. (2004) Threat appraisals, distress and the development of positive life changes after September 11th in a Canadian sample, *Cognitive Behaviour Therapy*, Taylor & Francis Group , 33(2), pp: 68–78.

Devlin, E. (2000) Waitrose report uncovers changes to shopping habits during lockdown | News | The Grocer.[online] Available from: https://www.thegrocer.co.uk/consumer-trends/waitrose-report-uncovers-changes-to-shopping-habits-during-lockdown/604678.article. [Accessed: 4 March 2021].

Drolet, A. (2002) Inherent Rule Variability in Consumer Choice: Changing Rules for Change's Sake, *Journal of Consumer Research*, Oxford Academic, 29(3), pp: 293–305.

Duncan, L.A., Schaller, M. & Park, J.H. (2009) Perceived vulnerability to disease: Development and validation of a 15-item self-report instrument, *Personality and Individual Differences*, Pergamon, 47(6), pp: 541–546.

Faulkner, J., Schaller, M., Park, J.H. & Duncan, L.A. (2004) Evolved Disease-Avoidance Mechanisms and Contemporary Xenophobic Attitudes, *Group Processes & Intergroup Relations*, Sage PublicationsSage CA: Thousand Oaks, CA, 7(4), pp: 333–353.

Finkelstein, S.R., Xu, X. & Connell, P.M. (2019) When variety is not the spice of life: The influence of perceived relational self-threat on variety seeking in snack choices, *Appetite*, Academic Press, 136, pp: 154–159.

Galoni, C., Carpenter, G.S. & Rao, H. (2020) Disgusted and Afraid: Consumer Choices under the Threat of Contagious Disease, In: Inman, J.J. & Hoegg, J.(eds.) *Journal of Consumer Research*, Oxford University Press, 47(3), pp: 373–392.

Godleski, S. A., Harris, C. T., Fitzpatrick, K. M. & Kothari, A. (2022) Social and behavioral vulnerability, pregnancy, and negative mental health outcomes in the US during the Covid-19 pandemic. *AIMS public health*, 9(24), p: 331.

Gong, Y., Lu, P. & Yang, X. T. (2023) Impact of COVID-19 on traffic safety from the "Lockdown" to the New Normal: A case study of Utah. *Accident Analysis & Prevention*, 184, p: 106995.

Goodwin, R., Willson, M. & Stanley, G. (2005) Terror threat perception and its consequences in contemporary Britain, *British Journal of Psychology*, John Wiley & Sons, Ltd, 96(4), pp: 389–406.

Greenberg, J., Pyszczynski, T. & Solomon, S. (1986) The Causes and Consequences of a Need for Self-Esteem: A Terror Management Theory, *Public Self and Private Self*, Springer New York, pp: 189–212.

Hayes, A.F. (2013) *Methodology in the Social Sciences. Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*, Guilford Press.

Hernández-Fernández, C., & Meneses-Falcón, C. (2022) I can't believe they are dead. Death and mourning in the absence of goodbyes during the COVID-19 pandemic. *Health & Social Care in the Community*, 30(4), pp:1220-1232.

Hill, S.E., Prokosch, M.L. & Delpriore, D.J. (2015) The Impact of Perceived Disease Threat on Women's Desire for Novel Dating and Sexual Partners: Is Variety the Best Medicine?. [online] Available from:https://doi.org/10.1037/pspi0000024.

Hogg, M. A. & Mullin, B. (1999) Joining groups to reduce uncertainty: Subjective uncertainty reduction and group identification, *Social Identity and Social Cognition*, Blackwell, Oxford, UK, pp: 249–279.

Huang, Y. & Sengupta, J. (2020) The Influence of Disease Cues on Preference for Typical versus Atypical Products, In:Eileen, F. & Lee, L. (eds.). *Journal of Consumer Research*, Oxford University Press, 47(3), pp: 393–411.

Huang, Z. & Wyer, R.S. (2015) Diverging effects of mortality salience on variety seeking: The different roles of death anxiety and semantic concept activation, *Journal of Experimental Social Psychology*, Academic Press Inc., 58, pp: 112–123.

Kahn, B.E. & Isen, A.M. (1993) The Influence of Positive Affect on Variety Seeking Among Safe, Enjoyable Products, *Journal of Consumer Research*, Oxford University Press (OUP), 20(2), p. 257.

Kim, H.S. & Drolet, A. (2003) Choice and Self-Expression: A Cultural Analysis of Variety-Seeking, *Journal of Personality and Social Psychology*, 85(2), pp: 373–382.

Kim, J., (Gina) Cui, Y., Jang, S., Spence, M.T. & Park, J. (2019) Response to Thoemmes and Lemmer (2019) regarding mediation analysis revisited, *Australasian Marketing Journal*, Elsevier Australia, 27(2), pp: 126–128.

Kim, J., Giroux, M., Gonzalez-Jimenez, H., Jang, S., Kim, S. (Sam), Park, J., Kim, J.-E., *et al.* (2020) Nudging to Reduce the Perceived Threat of Coronavirus and Stockpiling Intention, *Journal of Advertising*, Routledge, 49 (5), pp: 633–647.

Kim, J., Hwang, E., Phillips, M., Jang, S., Kim, J.E., Spence, M.T. & Park, J. (2018) Mediation analysis revisited: Practical suggestions for addressing common deficiencies, *Australasian Marketing Journal*, Elsevier Australia, 1 February.

Kim, J., Park, J., Kim, S., Lee, D. C. & Sigala, M. (2022) COVID-19 restrictions and variety seeking in travel choices and actions: The moderating effects of previous experience and crowding. *Journal of Travel Research*, 61(7), pp: 1648-1665.

Kim, J. & Kim, S. (Ange). (2016) The Influence of Mating Goal Activation and Gender Differences on the Evaluation of Advertisements Containing Sexual Words, *Australasian Marketing Journal*, Elsevier Australia, 24(3), pp: 205–213.

Kim, J. & Seo, Y. (2019) An Evolutionary Perspective on Risk Taking in Tourism, *Journal of Travel Research*, SAGE Publications Ltd, 58(8), pp: 1235–1248.

Kirk, C.P. & Rifkin, L.S. (2020) I'll trade you diamonds for toilet paper: Consumer reacting, coping and adapting behaviors in the COVID-19 pandemic, *Journal of Business Research*, Elsevier Inc., 117, pp: 124–131.

Laran, J. (2010) Choosing Your Future: Temporal Distance and the Balance between Self-Control and Indulgence, *Journal of Consumer Research*, Oxford Academic, 36 (6), pp: 1002–1015.

Lazarus, R.S. & Folkman, S. (2018) *Stress, Appraisal, And Coping*.

Lee, J.C., Kim, J. & Kwak, K. (2018) A multi-attribute examination of consumer conformity in group-level ordering, *Australasian Marketing Journal*, Elsevier Australia, 26(1), pp: 41–48.

Levav, J. & Zhu, R. (2009) Seeking Freedom through Variety, *Journal of Consumer Research*, Oxford Academic, 36(4), pp: 600–610.

Mandel, N. & Smeesters, D. (2008) The Sweet Escape: Effects of Mortality Salience on Consumption Quantities for High- and Low-Self-Esteem Consumers, *Journal of Consumer Research*, Oxford Academic, 35(2), pp: 309–323.

Matarazzo, M., Diamantopoulos, A. & Raff, A. (2023) Buy local" campaigns in times of crisis: insights from reactance theory. *International Marketing Review*, 40(7), pp:45-78.

McAlister, L. & Pessemier, E. (1982) Variety Seeking Behavior: An Interdisciplinary Review, *Journal of Consumer Research*, Oxford University Press (OUP), 9(3), p. 311.

Menon, S. & Kahn, B.E. (1995) The Impact of Context on Variety Seeking in Product Choices, *Journal of Consumer Research*, Oxford University Press (OUP), 22(3), p. 285.

Menidjel, C., Hollebeek, L. D., Urbonavicius, S. & Sigurdsson, V. (2023) Why switch? The role of customer variety-seeking and engagement in driving service switching intention. *Journal of Services Marketing*, 37(5), pp: 592-605.

Mittelman, M., Andrade, E.B., Chattopadhyay, A. & Brendl, C.M. (2014) The Offer Framing Effect: Choosing Single versus Bundled Offerings Affects Variety Seeking, *Journal of Consumer Research*, University of Chicago Press, 41(4), pp: 953–964.

Murray, D.R. & Schaller, M. (2010) Historical Prevalence of Infectious Diseases Within 230 Geopolitical Regions: A Tool for Investigating Origins of Culture, *Journal of Cross-Cultural Psychology*, SAGE PublicationsSage CA: Los Angeles, CA, 41(1), pp: 99–108.

Navarrete, C.D. & Fessler, D.M.T. (2006) Disease avoidance and ethnocentrism: the effects of disease vulnerability and disgust sensitivity on intergroup attitudes, *Evolution and Human Behavior*, Elsevier, 27(4), pp: 270–282.

Navarrete, C.D., Fessler, D.M.T. & Eng, S.J. (2007) Elevated ethnocentrism in the first trimester of pregnancy", *Evolution and Human Behavior*, Elsevier, 28(1), pp: 60–65.

Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M., *et al.* (2020) The socio-economic implications of the coronavirus pandemic (COVID-19): A review, *International Journal of Surgery*, Elsevier Ltd, 1 June.

Park, J.H., Faulkner, J. & Schaller, M. (2003) Evolved disease-avoidance processes and contemporary anti-social behavior: Prejudicial attitudes and avoidance of people with physical disabilities, *Journal of Nonverbal Behavior*, Springer, June.

Post, R. A., Blijlevens, J., Hekkert, P., Saakes, D. & Arango, L. (2023) Why we like to touch: Consumers' tactile esthetic appreciation explained by a balanced combination of unity and variety in product designs. *Psychology & Marketing*, 40, pp: 1249–1262.

Pyszczynski, T., Solomon, S. & Greenberg, J. (1999) A dual-process model of defense against conscious and unconscious death-related thoughts: An extension of terror management theory, *Psychological Review*, American Psychological Association Inc., 106(4), pp: 835–845.

O'Donnell, M., Critcher, C. R. & Nelson, L. D. (2023) Bundle Selection and Variety Seeking: The Importance of Combinatorics. *Journal of Consumer Research*, 49(5), pp: 861-881.

Pyszczynski, T., Solomon, S., Greenberg, J., Arndt, J. & Schimel, J. (2004) Why do people need self-esteem? A theoretical and empirical review, *Psychological Bulletin*, May.

Ratner, R.K. and Kahn, B.E. (2002) The Impact of Private versus Public Consumption on Variety-Seeking Behavior, *Journal of Consumer Research*, Oxford Academic, 29(2), pp: 246–257.

Ratner, R.K., Kahn, B.E. & Kahneman, D. (1999) Choosing Less-Preferred Experiences For the Sake of Variety, *Journal of Consumer Research*, University of Chicago Press, 26(1), pp: 1–15.

Read, D. & Loewenstein, G. (1995) Diversification Bias: Explaining the Discrepancy in Variety Seeking Between Combined and Separated Choices", *Journal of Experimental Psychology: Applied*, 1(1), pp: 34–49.

Roehm, H.A. & Roehm, M.L. (2005) Revisiting the Effect of Positive Mood on Variety Seeking, *Journal of Consumer Research*, Oxford Academic, 32(2), pp: 330–336.

Roy, B.A. & Kirchner, J.W. (2000) Evolutionary dynamics of pathogen resistance and tolerance, *Evolution*, Society for the Study of Evolution, 54(1), pp: 51–63.

Schaller, M. & Park, J.H. (2011) The Behavioral Immune System (and Why It Matters), *Current Directions in Psychological Science*, SAGE PublicationsSage CA: Los Angeles, CA, 20(2), pp: 99–103.

Schindler, S., Hilgard, J., Fritsche, I., Burke, B. & Pfattheicher, S. (2023) Do salient social norms moderate mortality salience effects? A (challenging) meta-analysis of terror management studies. *Personality and Social Psychology Review*, 27(2), pp:195-225.

Scriven, J., Clemente, M., Dawes, J., Trinh, G. & Sharp, B. (2017) Buying brands at both regular price and on promotion over time, *Australasian Marketing Journal*, Elsevier Australia, 25 (4), pp: 252–260.

Sevilla, J., Lu, J. and Kahn, B.E. (2019) Variety Seeking, Satiation, and Maximising Enjoyment Over Time, In: John, D.R. (ed.). *Journal of Consumer Psychology*, Wiley-Blackwell, 29(1), pp: 89–103.

Sigala, M. (2020) Tourism and COVID-19: Impacts and implications for advancing and resetting industry and research, *Journal of Business Research*, Elsevier Inc., 117, pp: 312–321.

Simonson, I. (1990) The Effect of Purchase Quantity and Timing on Variety-Seeking Behavior, *Journal of Marketing Research*, SAGE Publications, 27(2), pp: 150–162.

Simonson, I. and Winer, R.S. (1992) The Influence of Purchase Quantity and Display Format on Consumer Preference for Variety, *Journal of Consumer Research*, Oxford University Press (OUP), 19(1), p. 133.

Slovic, P., Fischhoff, B. & Lichtenstein, S. (1980) Facts and Fears: Understanding Perceived Risk, *Societal Risk Assessment*, Springer US, Boston, MA, pp: 181–216.

Streletskaya, N. A., Maruyama, S., Queisser, S., Cole, S., Stelick, A. N., & Lim, J. (2023) How information leads consumers to select specialty foods when tasting is not an option. *Food Quality and Preference*, 105, p:104769.

Tomaka, J., Blascovich, J., Kelsey, R.M. & Leitten, C.L. (1993) Subjective, Physiological, and Behavioral Effects of Threat and Challenge Appraisal, *Journal of Personality and Social Psychology*, 65.

Wang, J., Zhang, Z. & Jia, M. (2023) Redemption from SRHRM under COVID-19: How business threat due to

COVID-19 affects employee insomnia via hope and workplace anxiety. *Journal of Occupational and Organizational Psychology*, 96(2), pp: 429-456.

Wong, J.E.L., Leo, Y.S. & Tan, C.C. (2020) COVID-19 in Singapore - Current Experience: Critical Global Issues That Require Attention and Action, *JAMA - Journal of the American Medical Association*, American Medical Association.

Woodside, A.G. (2020) Interventions as experiments: Connecting the dots in forecasting and overcoming pandemics, global warming, corruption, civil rights violations, misogyny, income inequality, and guns, *Journal of Business Research*, Elsevier Inc., 117, pp: 212–218.

Wu, B.P. and Chang, L. (2012) The social impact of pathogen threat: How disease salience influences conformity, *Personality and Individual Differences*, Pergamon, 53(1), pp: 50–54.

Yap, S.F. and Kapitan, S. (2017) Consumption coping and life transitions: An integrative review, *Australasian Marketing Journal*, Elsevier Australia, 25(3), pp: 194–205.

Yoon, S. and Kim, H.C. (2018) Feeling Economically Stuck: The Effect of Perceived Economic Mobility and Socioeconomic Status on Variety Seeking. In: Morwitz, V. & Botti, S. (eds.). *Journal of Consumer Research*, Oxford University Press, 44(5), pp: 1141–1156.

Sri Lanka Journal of Social Sciences 2023 46 (2): 213-228
DOI: https://doi.org/10.4038/sljss.v46i02.8830

RESEARCH ARTICLE

Unraveling the impact of metacognitive planning on writing performance through willingness to write in Pakistani ESL learners: a mixed-methods study

Shazma Razzaq* **and Mohd Hilmi Hamzah**
School of Languages, Civilisation & Philosophy (SLCP), Universiti Utara Malaysia (UUM), Malaysia.

Abstract: Despite the extensive focus by the Pakistani government on improving English language skills among English as a Second Language (ESL) learners, their writing performance in English remains unsatisfactory. To address this issue, this study aimed to examine the role of planning as a metacognitive strategy in writing performance, along with the indirect effect of willingness to write. The research employed a mixed-methods approach, collecting quantitative data through a survey questionnaire and a writing performance test administered to 145 students pursuing a Bachelor of Science (BS) in English at Pakistani universities, and qualitative data through semi-structured interviews with selected participants. The Partial Least Square (PLS) Structural Equation Modeling (SEM) and thematic analyses were employed for quantitative and qualitative data analysis, respectively. The findings revealed that planning as a metacognitive strategy can enhance the writing performance of Pakistani ESL learners. Planning was found to promote willingness to write, subsequently contributing to increased writing performance. Willingness to write emerged as a mediating variable between planning and writing performance. The findings of the study carry practical implications for universities to enhance students' writing performance by implementing planning strategies and improving their willingness to write.

Keywords: Metacognitive strategy, planning, willingness to write, writing performance, ESL learners, public universities.

INTRODUCTION

Due to the increasing global influence of the English language, the Pakistani government has re-emphasised the importance of the English language in universities. At all levels of education, the English language is already a core subject. However, the writing performance of students is below the satisfactory level (Abbas *et al.*, 2018; Sabir *et al.*, 2023; Samiullah & Haidar, 2022), which requires significant attention. The main dilemmas include; vocabulary, punctuation, grammar, and spelling, voluble syllabus, and restricted time (Shafique *et al.*, 2022). Pakistani students were found to have low writing self-efficacy (Fareed *et al.*, 2021) leading to low writing performance. The low writing performance of Pakistani ESL learners harms their academic careers.

The most significant dilemma in the Pakistani university educational system is rooted in the continued practice of outdated teaching methodologies (Noor *et al.*, 2020). This situation poses a great challenge in producing dynamic and progressive results, particularly for ESL pedagogy. Due to this old-fashioned methodology, i.e., the grammar-translation method (GTM), the failure ratio of the students in Pakistan, especially from the province of Punjab, is enormous in the subject of English in comparison with the rest of the subjects at every level of education (Brubacher, 2011). This problem can be resolved by focusing on the metacognitive strategies among universities. The metacognitive strategies significantly contribute to the writing performance of students (Robillos & Thongpai, 2022; Teng *et al.*, 2022; Vocal & Borong, 2022). The knowledge of metacognitive strategies (Karlen, 2017) and implementation has a

* Corresponding author (shazmarazzaq4@gmail.com; https://orcid.org/0000-0002-9053-9776)

vital role in writing performance. However, Pakistani students cannot follow metacognitive strategies. This study focused on planning as a metacognitive strategy suitable to improve writing performance. Suitable writing planning supports good writing performance, while inadequate writing planning may lead to poor performance in writing (Bourdin & Fayol, 2000).

Furthermore, this study considered the willingness to write among university students, an influential variable that has not been addressed in previous studies on planning and writing performance. Without the willingness of ESL learners, planning cannot be beneficial to improve writing performance. Several previous studies considered planning (Channa *et al*., 2015; Ellis *et al*., 2012; Takallou, 2011), however, these studies have not addressed the influential role of willingness to write. None of the previous studies have examined the impact of planning on the willingness to write and writing performance among Pakistani ESL learners. Hence, in addition to addressing the direct impact of planning, this study focused on the indirect effect of willingness to write between planning and writing performance. Consequentially, the objective of this study is to examine the role of planning as a metacognitive strategy on writing performance along with the indirect effect of willingness to write among Pakistani university ESL learners.

THEORETICAL FRAMEWORK

This study considered one metacognitive writing strategy namely, planning to promote the writing performance of ESL students in Pakistan. Metacognitive strategy can be defined as the mental executive skills that "control cognitive activities and ensure a cognitive goal is achieved" (Xing *et al*., 2008). The metacognitive strategy of planning refers to the assignment of tasks to accomplish goals (Zhang & Seepho, 2013)**.** The effect of planning on writing performance is developed based on two theories. These two theories include the theory of metacognition and the cognitive process theory of writing. This theory of metacognition is presented by Flavell (1979). The theory of metacognition suggests that metacognitive strategies including planning can help a writer to promote writing quality. Consistent with this theory, the current study considered the effect of planning as a metacognitive strategy on the writing performance of ESL learners. Similar to this study, the theory of metacognition claims that planning the paragraph before writing can improve performance in writing. According to Flavell (1979), theory of metacognition, humans have an understanding of their cognitive processes and are capable of actively overseeing, managing, and governing their thoughts. The favorable impact of planning as a metacognitive writing approach in the context of writing can be attributed to the heightened self-awareness and control it offers (Mazancieux *et al*., 2019). By engaging in planning, students can employ higher-order cognitive skills, such as goal setting, concept organisation, and strategic thinking, to effectively approach the writing assignment. Engaging in metacognition enables students to proactively anticipate obstacles, efficiently manage resources, and adapt their writing process accordingly. Hence, the deliberate utilisation of planning aligns with Flavell's metacognitive framework, enabling students to effectively negotiate the intricacies of writing assignments and ultimately enhance their writing proficiency (Wilson, 1985).

Similarly, a cognitive process theory of writing mentioned that a writer's thought procedures which is a part of planning can help to write better. A cognitive process theory of writing was presented by Flower & Hayes in 1981 (Flower & Hayes, 1981) grounded in gaining insight into the writing process through the writer's thought procedures (Alfaki, 2015). The cognitive process theory of writing posits that writing involves a series of interconnected cognitive processes, such as planning, drafting, revising, and editing (Flower & Hayes, 1981). Within this framework, planning serves as a critical phase where students engage in thoughtful organisation of their ideas before actual writing. The positive impact of planning on student writing performance can be attributed to its role in facilitating a systematic and well-structured approach to composition (Flower & Hayes, 2004). By outlining thoughts and considering the overall structure in advance, students enhance the coherence and clarity of their writing. In essence, planning as a metacognitive strategy aligns with the cognitive process theory by optimizing the initial stages of the writing process, leading to improved overall writing quality.

Thus, the relationship between planning and writing performance is well justified with the help of the theory of metacognition and a cognitive process theory of writing. However, only planning cannot promote writing performance, willingness of the writer is more important to get maximum benefit from planning. Writing performance cannot be improved by just planning because the ESL learners' willingness to write is crucial. Hence, willingness to write plays an important role in planning and writing performance. Therefore, this study addressed the mediating role of willingness to write between planning and writing performance as shown in Figure 1.

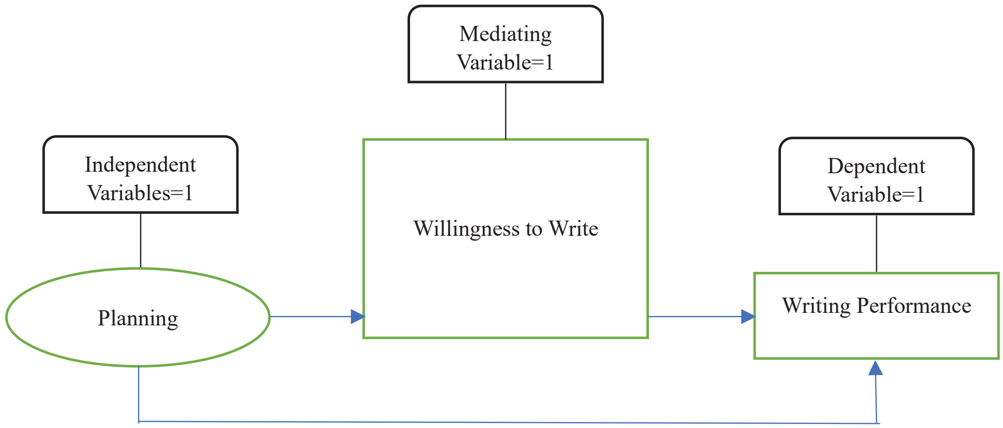


Figure 1: Theoretical framework of the study describing the relationship between planning, Willingness To Write (WTW) and writing performance

Relationship between planning and writing performance

The metacognitive strategy of planning refers to the assignment of tasks to accomplish goals (L. Zhang & Seepho, 2013). In this study, planning refers to the writing task setting by considering paragraph structure, making an outline, language features, setting up writing goals, time allocation, writing preparation, and efficient use of online resources. Nejad *et al*. (2022) concluded that critical thinking abilities, including planning, are useful for English as foreign language learners, improving their writing performance. Qin & Zhang (2019) reported that non-native English learners could use metacognitive strategies effectively for better learning and writing performance. Chuo (2007) pointed out that writing instructions, including planning and self-evaluating, are important for writing performance and apprehension of non-native English language learners. According to Limpo & Alves (2017), transcription planning has an important influence on the writing performance of students. Furthermore, Graham *et al*. and Fishman (2017) added that writing behaviour, planning, and performance are significantly interrelated and facilitate improving students' learning. Additionally, Abdolrezapour (2013) demonstrated that the connection between emotional intelligence and writing performance is significant and facilitates the students to plan and evaluate their writing for strong skills development. Similarly, Esmaeili (2002) reported that the planning of task writing is necessary for writing performance in writing tests. A study carried out by Rochmah (2020) identified that different modes of planning while writing help to promote writing accuracy. Additionally, Aripin & Rahmat (2021) confirmed that the metacognition model which also includes planning helps to promote ESL learners' writing process. Olinghouse *et al*. (2015) concluded that the knowledge of the topic and planning of writing significantly influence writing performance. Therefore, the literature shows the relationship between planning and writing performance which is highlighted in following hypothesis.

Hypothesis 1: There is a significant relationship between planning and writing performance.

Relationship between planning and willingness to write

Willingness can be defined as the quality or state of being prepared to do something (Alakrash & Razak, 2020). Writing is considered a complex process to discover ideas, and thoughts or generate meaning. To convey fundamental and essential meaning in persuasive, effective, and successful writing, writers must be knowledgeable of various facets. According to most language students, writing is the most challenging and problematic skill to master. However, this problem can be resolved through a better willingness to write with the help of planning strategies. According to Esfandiari Dehmajnoni & Amjadiparvar (2022), students can improve their willingness to write and communicate when they have online planning for learning a language. In the study carried out by Rafiee & Abbasian-Naghneh (2020), it is reported that students' willingness to write can be improved with motivation and self-confidence that arbased on their planning. Basöz & Erten (2018) reported that Turkish students of an English language course could improve their writing and communication through proper writing planning. Additionally, Mirsane & Khabiri (2016) concluded that students' willingness to write could be increased if their teachers motivated them to perform well and assisted them with writing planning and evaluation. Widiastuti (2018) revealed that the students' willingness to write and their confidence in writing is directly influenced by their self-assessment factors (i.e., planning). Meanwhile, Liao & Roy (2017) addressed that the willingness to write poetry in English by students of another language is influenced by the planning and rationality that is critical for a learner. Thus, literature highlighted the connection between planning and willingness to write which is proposed through the following hypothesis;

Hypothesis 2: There is a significant positive relationship between planning and willingness to write.

Relationship between willingness to write and writing performance

In linguistics, performance is referred to as an individual's linguistic behaviour, which involves his/her capability to write in a specific language. Writing performance is grounded on five components; content, organisation, grammar, vocabulary, and mechanics (Hedgcock & Lefkowitz, 1992). Willingness to write is the most imperative element discussed in various studies (Chung & Leung, 2016; Le *et al*., 2019; Liang *et al*., 2019; Madeng & Palanukulwong, 2019; Sharrad & Faravani, 2021b), However, these studies have not addressed writing performance. To fill this gap, the effect of willingness to write on writing performance is addressed. Writing is complex as it is a multidimensional and complicated process influencing different cognitive and affective factors (Alnufaie & Grenfell, 2013). Several researchers attempted to explore this phenomenon to address these complicated writing dimensions. In these directions, several previous studies attempted to identify the factors affecting writing performance (Graham *et al*., 2019; Kojima, 2020; Nik *et al*., 2010; Teng, 2020), however, the effect of willingness to write in relation to writing performance was ignored.

There is a crucial positive relationship between willingness to write and writing performance. An essential factor favorable to becoming a decent writer is the willingness to write (Lefever & Carati, 1995). Willingness to write is considered a sub-element of willingness to communicate (Khajavy *et al*., 2016) which is essential for writing performance. De Bernardi & Antolini (2006) proved a positive relationship between willingness and interest in argumentative writing. The student's failure, along with the trouble in writing in English, could be addressed with the help of applying a writing method, which can inspire individuals to discover topics, gather various ideas from good pieces of knowledge, and use the draft as well as review in their writing (Reid, 1993). However, it requires a level of students' willingness. Numerous studies have also demonstrated that writing helps to develop a better level of positive features toward writing learners and their willingness to take risks to write (Liao & Wong, 2010; Puengpipattrakul, 2014; Rattanaintanin, 2017). Generally, students' willingness to find their thinking and manifest their ideas is important (Liao & Wong, 2010; Puengpipattrakul, 2014). Therefore, willingness to write influences the writing performance of students which is proposed through the following hypothesis;

Hypothesis 3: There is a significant positive relationship between willingness to write and writing performance.

The mediation hypothesis suggests that the relationship between planning and writing performance is contingent upon an individual's inclination to engage in writing. Essentially, the level of inclination or motivation to participate in writing serves (Hasanah & Ali, 2020) as a mediator in this relationship. Individuals who possess a greater inclination toward writing (Camacho *et al.*, 2021) may demonstrate a more pronounced association between their preparatory endeavours and the tangible results of their writing. This implies that a person's proactive attitude towards writing, fueled by passion or enthusiasm, is essential in turning planning into successful writing. The mediation concept suggests that the influence of planning on writing performance may rely on the individual's willingness, highlighting the complex interaction between cognitive processes and motivational elements in the domain of writing accomplishment.

Furthermore, the mediating role of willingness to write between planning and writing performance is considered by following the instructions of Baron & Kenny (1986). According to the approach of Baron & Kenny (1986), planning must have a relationship with willingness to write, and willingness to write must have a relationship with writing performance. Furthermore, there should be a direct relationship between planning and writing performance. The aforementioned discussion proved all these relationships allow this study to use willingness to write as a mediating variable between planning and writing performance. Therefore, this study proposed that willingness to write is a central factor in producing better writing performance as outlined in the following hypothesis;

Hypothesis 4: Willingness to write mediates the relationship between planning and writing performance.

METHODOLOGY

Research design

The research design is the most significant part of any study which should be consistent with the objective. This study employed a mixed-methods research design. A mixed-methods research design includes the collection, analysis, and integration of both quantitative and qualitative data at a definite stage of the research process within the same study. For the quantitative part, this study used a questionnaire and for the qualitative part, this study used semi-structured interviews. While using mixed-methods research, this study employed a sequential explanatory mixed-methods approach as illustrated in Figure 2.

Operational definition of the variables

In this study, writing performance refers to an individual's linguistic ability to generate high-quality writing, taking into account writing content, text organisation, grammar, vocabulary, and writing mechanics. It is assessed through a writing test, which is evaluated based on content, organisation, grammar, vocabulary, and mechanics, following the guidelines outlined by Hedgcock & Lefkowitz (1992). Before undertaking main data collection, a pilot study was carried out. A panel of three reviewers was selected from the English Departments of three universities. Therefore, three professors of applied linguistics were selected from three universities to confirm the validity of the instrument. After the confirmation of validity, a descriptive writing test was employed to measure the students' writing performance. The test topic was selected from the International English Language Testing System (IELTS) writing topics. The essays written by the students were evaluated using the writing composition scale provided by Hedgcock & Lefkowitz (1992). The writing composition scale was based on five categories: content, organisation, grammar, vocabulary, and mechanics. English writing performance of students was based on the total score attained on the writing task. Students' essay writing skills were evaluated by the relevant examiners from universities. The examiners rated each category out of 10 points. Finally, based on the marks obtained, it was converted into the 5-point Likert scale.

Furthermore, willingness denotes the quality or state of being prepared to do English writing by considering willingness to develop notes in English, willingness to respond to mistakes, willingness to write journals in English, willingness to write daily routine activities, willingness to write dialogue, and willingness to improve English. The scale items are adapted from Madeng & Palanukulwong (2019). Finally, planning refers to the writing task setting by considering paragraph structure, making an outline, language features, setting up writing goals, time allocation, writing preparation, and efficient use of online resources. The scale items are adapted from Zhang & Qin (2018). All the scale items are reported in the appendix along with the complete questionnaire. Furthermore, for the qualitative part of the study, two interview protocols were developed for planning and three interview protocols to examine the effect of willingness to write. All the interview protocols are presented in the appendix.

Data collection

In the case of quantitative data, a structured questionnaire was used for data collection from the respondents. 300 questionnaires were used for data collection from the public universities of South Punjab, Pakistan. First-semester students of BS English from public universities were considered. The rationale for selecting Punjab instead of other provinces in Pakistan is that it is the most populous province with a higher literacy rate. This study targeted bachelor-level students from public universities, it is more suitable for the current study to examine the phenomenon under discussion due to the greater number of universities in this region. Only the first semester students are considered because these students have the same level of education. Stratified random sampling was

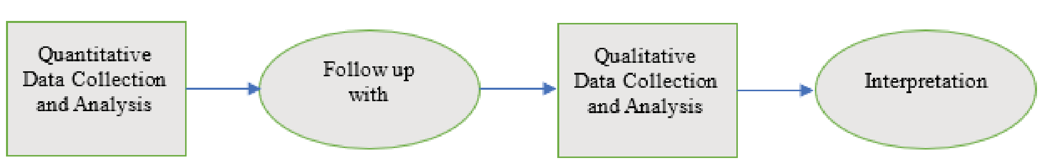


Figure 2: Explanatory sequential design.
Source: Creswell (2002)

Table 1: Basic statistics

	No.	Missing	Mean	Median	Min	Max	SD	Kurtosis	Skewness
PLAN1	1	0	3.681	4	1	5	1.191	-0.606	-0.541
PLAN2	2	0	3.775	4	1	5	1.157	-0.51	-0.632
PLAN3	3	0	3.611	4	1	5	1.148	-0.597	-0.469
PLAN4	4	0	3.667	4	1	5	1.145	-0.589	-0.464
PLAN5	5	0	3.719	4	1	5	1.133	-0.245	-0.67
PLAN6	6	0	3.846	4	1	5	1.11	-0.016	-0.79
PLAN7	7	0	3.67	4	1	5	1.183	-0.626	-0.539
WTW1	8	0	3.677	4	1	5	1.09	-0.582	-0.411
WTW2	9	0	3.705	4	1	5	1.065	-0.179	-0.598
WTW3	10	0	3.67	4	1	5	1.074	-0.377	-0.524
WTW4	11	0	3.442	4	1	5	1.194	-0.806	-0.347
WTW5	12	0	3.449	4	1	5	1.149	-0.674	-0.37
WTW6	13	0	3.432	4	1	5	1.167	-0.733	-0.334
WTW7	14	0	3.54	4	1	5	1.109	-0.611	-0.397
WP	15	0	3.428	4	1	5	1.202	-0.856	-0.311

Note: PLAN = Planning; WTW = Willingness to Write; WP = Writing Performance

used to distribute the questionnaires. Questionnaires were distributed physically by visiting the English Departments of various universities. Similarly, after the questionnaire distribution, the same students were requested to participate in a writing test to evaluate writing performance. A total of 145 valid responses were received; therefore, the response rate was 48.3% which is suitable for the next step of data analysis. Furthermore, qualitative data were collected by using semi-structured interviews. Six semi-structured interviews were conducted with the first-semester students of BS English.

This study carried out data screening before data analysis which is important to remove errors in the data (Won *et al*., 2017). In this section of the study, quantitative data were used for data screening in which various errors related to the missing value and outlier were examined. Data was found free from these errors and data normality was fine. Finally, data statistics after data screening are reported in Table 1.

DATA ANALYSIS AND FINDINGS

Quantitative findings

The quantitative findings of the study are grounded on Structural Equation Modeling (SEM) which was carried out through Partial Least Square (PLS) which is a popular data analysis technique (Hair *et al*., 2016; Shehzad *et al*., 2019). First, convergent validity, essential to achieve, was considered. For convergent validity, the PLS measurement model was employed, as illustrated in Figure 3. The results of the PLS measurement model for convergent validity are presented in Table 2.

Convergent validity was achieved by examining factor loadings, composite reliability (CR) (Khurram, 2023), and average variance extracted (AVE). Table 2 presents all the factor loadings which are higher than 0.5. Furthermore, CR and AVE are above 0.7 and 0.5, respectively. The achievement of the minimum threshold level for factor loading, CR, and AVE confirmed the convergent validity. Second, discriminant validity was confirmed by using the AVE square root as given in Table 3 (Henseler *et al*., 2015).

The relationship between planning, willingness to write, and writing performance was examined through the PLS structural model as indicated in Figure 4. PLS structural model is the most significant way to examine the relationship (Aziz *et al*., 2023; Cheah *et al*., 2018; Matthews, 2017). The direct effect results in Table 4 highlight that all the relationships are significant. The relationship between planning and writing performance

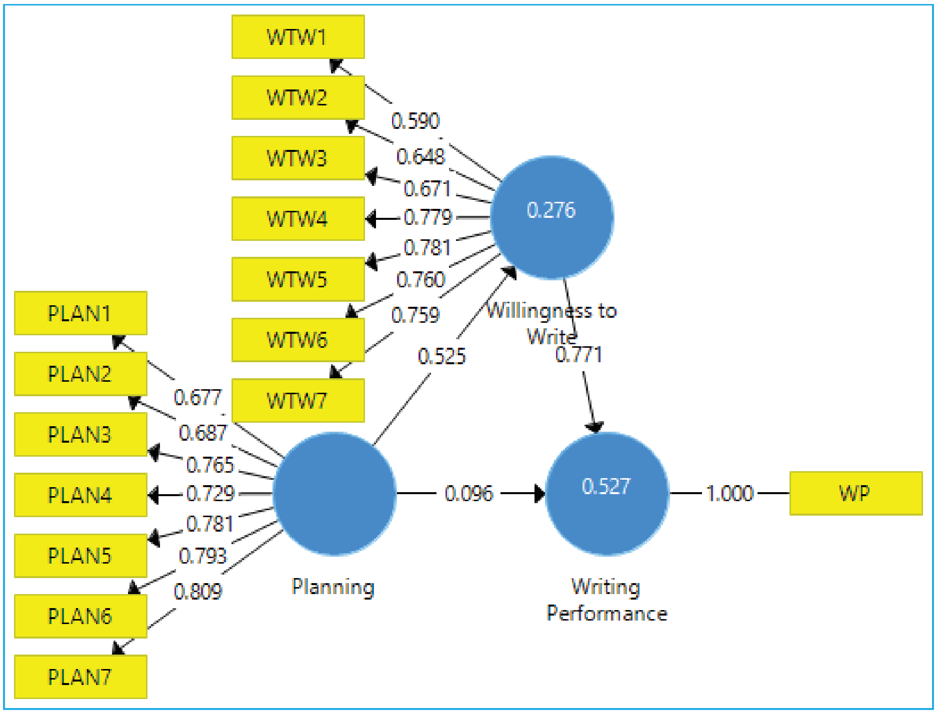


Figure 3: Measurement model assessment

Note: PLAN = Planning; WTW = Willingness to Write; WP = Writing Performance

Table 2: Convergent validity

Constructs	Items	Loading	Alpha	CR	AVE
Planning	PLAN1	0.677	0.87	0.9	0.563
	PLAN2	0.687			
	PLAN3	0.765			
	PLAN4	0.729			
	PLAN5	0.781			
	PLAN6	0.793			
	PLAN7	0.809			
Willingness to Write	WTW1	0.59	0.841	0.879	0.513
	WTW2	0.648			
	WTW3	0.671			
	WTW4	0.779			
	WTW5	0.781			
	WTW6	0.76			
	WTW7	0.759			
Writing Performance	WP	1	1	1	1

Note: PLAN = Planning; WTW = Willingness to Write; WP = Writing Performance

Table 3: Discriminant validity (AVE Square Root)

	Planning	Willingness to Write	Writing Performance
Planning	0.75		
Willingness to Write	0.525	0.716	
Writing Performance	0.309	0.621	1

Note: PLAN = Planning; WTW = Willingness to Write; WP = Writing Performance

Table 4: Results of Direct Effect

	B	M	STDEV	T Statistics	P Statistics
Planning -> Willingness to Write	0.525	0.524	0.06	8.743	0
Planning -> Writing Performance	0.096	0.094	0.046	2.073	0.039
Willingness to Write -> Writing Performance	0.771	0.769	0.038	20.128	0

Note: PLAN = Planning; WTW = Willingness to Write; WP = Writing Performance

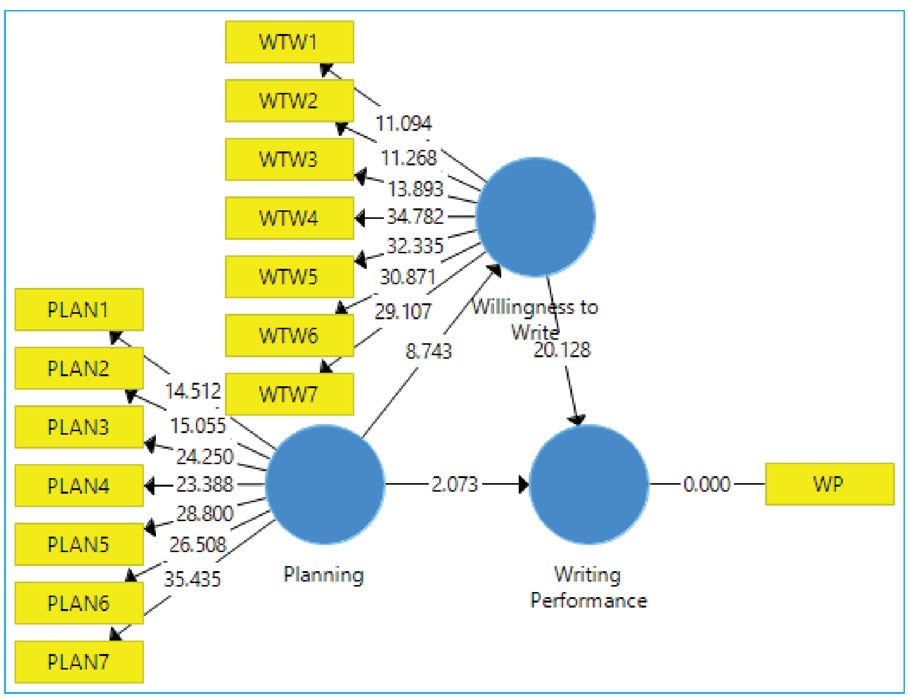


Figure 4: Structural model assessment

is significant as the t-value is higher than 1.96 (t-value=20.073; β-value=0.096) which accepted hypothesis 1. The relationship between planning and willingness to write is also significant which accepted hypothesis 2 (t-value=8.743; β-value=0.525). Finally, the relationship between willingness to write and writing performance is significant which accepted hypothesis 3 (t-value=20.128; β-value=0.771). These results are also given in Figure 5.

Moreover, the mediation effect of willingness to write was examined which is reported in Table 5. To assess the significance of the mediation effect, the t-value was considered similar to the direct effect. The mediation effect of willingness to write between planning and writing performance was proved significant (t-value=8.036; β-value=0.405). The mediation effect of willingness to write is visually apparent in the histogram which is indicated in Figure 6. Finally, this study assessed

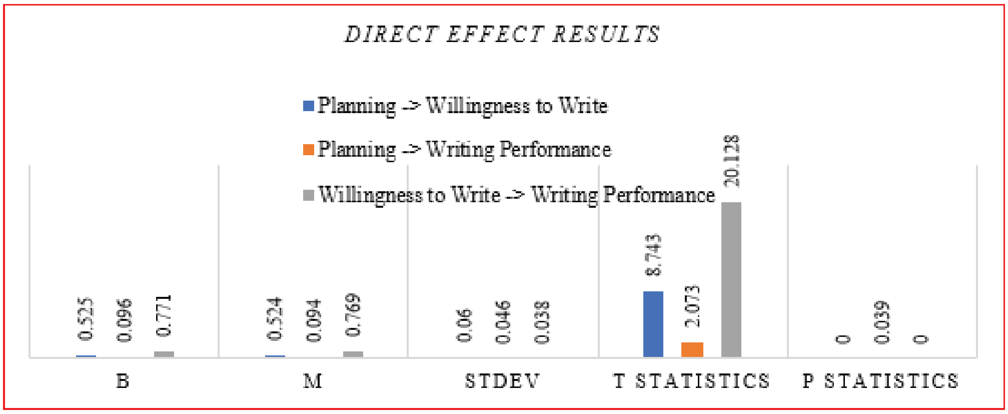


Figure 5: Results of Direct Effect

Table 5: Results of Mediation Effect

	β	M	STDEV	T Statistics	P Statistics
Planning -> Willingness to Write -> Writing Performance	0.405	0.403	0.05	8.036	0

Note: PLAN = Planning; WTW = Willingness to Write; WP = Writing Performance

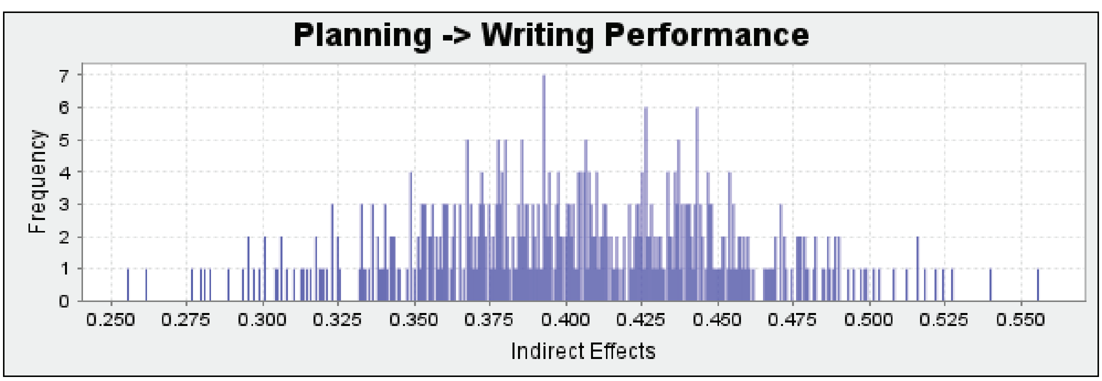


Figure 6: Results of Mediation Effect

the variance explained through r-square (R^2) which is 0.527. It identified that planning and willingness to write can bring a 52.7% change in writing performance.

Qualitative findings

Findings of the Pakistani ESL learners of English perspectives on the influence of planning on writing performance

This section of the study revealed the results of the influence of planning on writing performance among ESL learners of English. Planning is considered a metacognitive strategy. Therefore, this section provided the findings of planning on writing performance among university students. In interviews, participants emphasized crucial aspects related to planning for the improvement of writing performance. A concise overview of the findings is presented in Figure 7. In Figure 7, R1, R2, and R3 correspond to respondent/interviewee 1, respondent/interviewee 2, and respondent/interviewee 3, respectively. Respondents emphasized the significance of paragraph structure and the creation of an outline in enhancing the writing skills of ESL students.

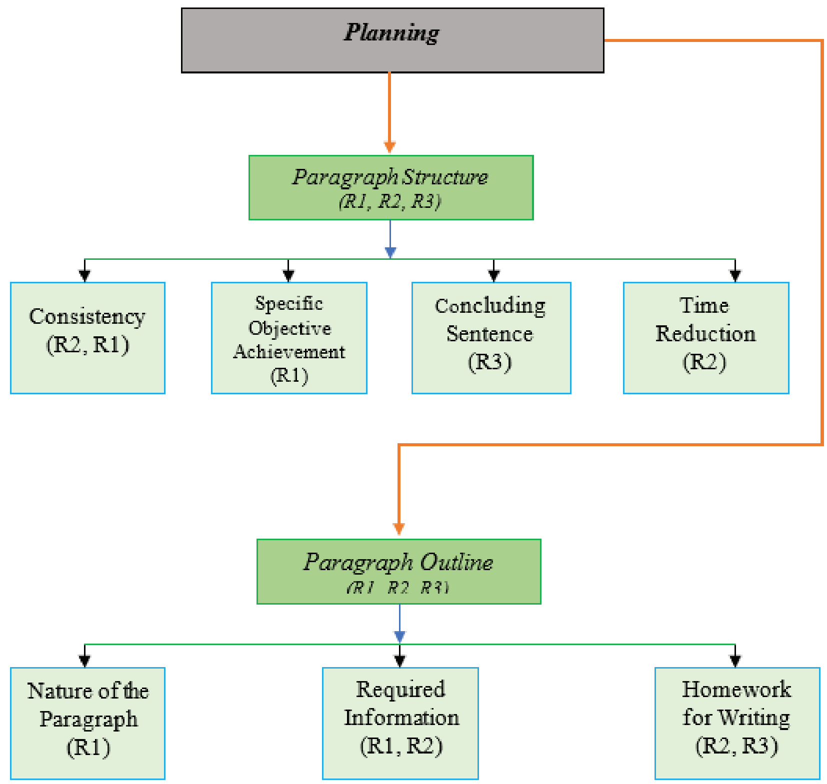


Figure 7: Summary of findings of Planning

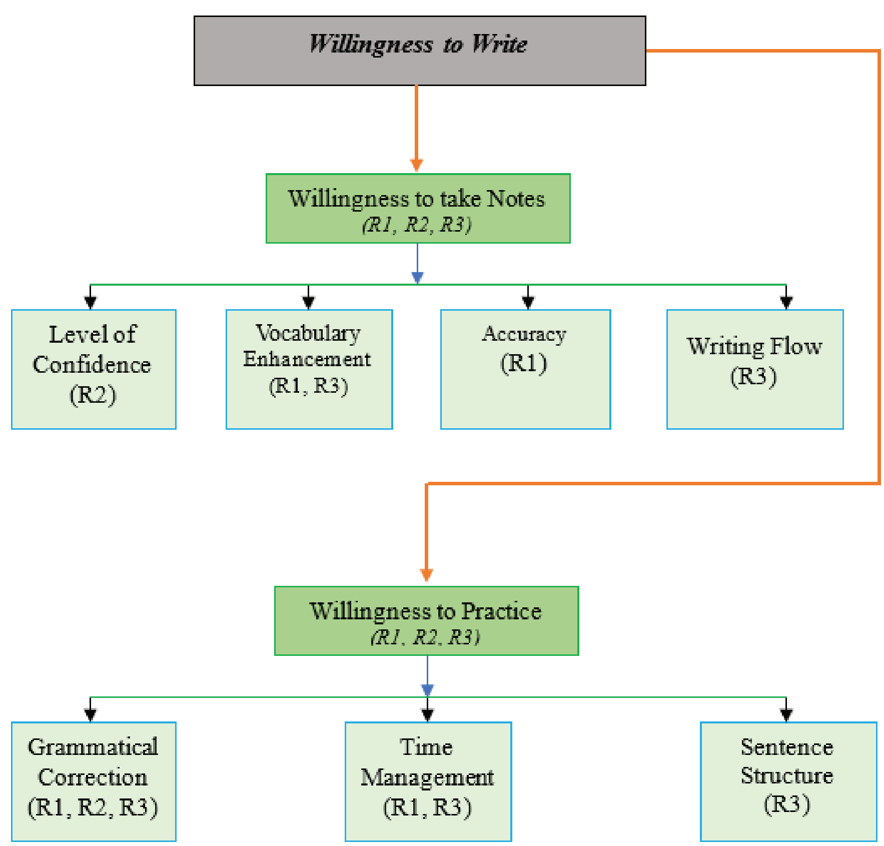


Figure 8: Summary of findings of Willingness To Write

> Well, [pause] the planning before writing is dependent on various elements and the structure of the paragraph is the crucial part of it. Paragraph structure is important in writing the text and planning paragraph structure can help me to compose better.
>
> In test composition, the role of the outline is critical. A better outline of the text can enhance the quality of my text. I think [long pause] planning the outline is most important in writing for me.

Findings of the Pakistani ESL learners of English perspectives on the influence of willingness to write on writing performance

This section addressed the influence of Willingness to Write (WTW) on the writing performance of Pakistani ESL learners of English. Interviewees revealed significant insights that contribute to improving writing through WTW. A summary of findings is reported in Figure 8. In Figure 8, R1, R2 and R3 denote the responded/interviewee 1, responded/interviewee 2 and responded/interviewee 3, respectively. Interviewees highlighted that, during the writing process, WTW has the potential to eliminate grammatical errors, enhance writing composition and that a willingness to practice can improve performance:

> Actually, [pause] the willingness to take notes helped me a lot to compose the text in a better way.
>
> A higher level of WTW increases the chances of fixing grammatical errors which ultimately increases the accuracy in writing compositing.
>
> It has a major effect on the writing composition. Generally, [pause], WTW is the imperative element in writing the text.
>
> Well, [pause] a better level of willingness to practice writing in English helps me to improve my writing performance.

DISCUSSION AND CONCLUSION

The objective of this study was to test the role of planning on writing performance along with the indirect effect of willingness to write. Four hypotheses were proposed including three direct effect hypotheses and one mediation effect hypothesis. To test these hypotheses, two types of data were collected: (a) quantitative data through a questionnaire survey and, (b) qualitative data through semi-structured interviews.

Hypothesis 1 was proposed to investigate the impact of planning on writing performance. This hypothesis is accepted because the results highlighted the significant effect of planning on writing performance. Results identified the positive effect of planning on writing performance suggesting that an increase in the use of planning strategies can enhance overall writing performance. According to these results, planning the structure of the paragraph has a positive role in enhancing the writing of the ESL students. Similarly, the act of outlining before writing is identified as having a significant impact on promoting writing performance. Furthermore, language features, writing goals, time allocation, writing preparation, and efficient use of online resources have the potential to enhance writing skills among ESL learners. These results are similar to those of previous studies which highlighted that planning has an important contribution to writing performance (Huisman *et al*., 2019; Tarin & Yawiloeng, 2022; Teng *et al*., 2022).

Hypothesis 2 was proposed to examine the effect of planning on willingness to write. It is observed that planning holds crucial importance in increasing writing performance and serves as a most significant metacognitive strategy for enhancing willingness to write among students. Planning including considerations such as planning paragraph structure, the outline of the text, language features, writing goals, time allocation, writing preparation and efficient use of online resources has the potential to enhance willingness. While there are existing studies addressing willingness to write (Hashemian & Farhang-Ju, 2022; Sharrad & Faravani, 2021a; b), there is limited research specifically focused on the willingness of ESL students. Similar to this study, De Bernardi & Antolini (2006) proved a positive relationship between willingness and interest of students in argumentative writing.

Hypothesis 3 was proposed to investigate the effect of willingness to write on writing performance and the results indicate a significant relationship, thereby accepting the hypothesis. The findings reveal that an increase in willingness to write among students correlates with improved writing performance. It is observed that willingness to develop notes in English, willingness to respond to mistakes, willingness to write journals in English, willingness to write daily routine activities, willingness to write dialogue, and willingness to improve English can enhance writing performance. Similarly, it is mentioned by Lefever & Carati (1995), that an essential factor favorable to becoming a decent writer is the willingness of a writer. Finally, hypothesis 4 reveals that the willingness to write is crucial between planning and writing performance. It is identified that willingness to write can transfer the positive effect of planning on writing performance.

The qualitative findings of the study highlight the importance of planning in fostering willingness to write. Furthermore, willingness to write was also found significant for writing performance. From interviews, it is identified that planning about the paragraph structure and outline of the text has a positive influence on enhancing willingness to write. Additionally, the willingness of ESL learners to engage in notes development, rectify mistakes, and actively participate in writing practices can increase writing performance. Consequently, it is identified that willingness to write is the mandatory factor in promoting writing performance through effective planning.

IMPLICATIONS OF THE STUDY

This study makes a significant contribution to the field of applied linguistics, offering valuable theoretical implications. This study contributes significantly to the theory of metacognition and a cognitive process theory of writing by stressing willingness to write. Notably, it extends the theory of metacognition by advocating for the inclusion of willingness to write as a crucial component. While willingness to write plays a pivotal role in student writing performance, it has been overlooked in the existing metacognition theory. The study also explores novel relationships that were not previously examined by other researchers. Additionally, this study also addressed various new relationships that were not tested by other researchers. The addition of new relationships and the addition of willingness to write have several practical implications.

The findings of the study are helpful for universities to improve the writing performance of students by implementing planning strategies. Furthermore, this study added significant pedagogical contributions, which is quite rare in previous studies. For stakeholders such as syllabus designers and the education industry, the present study makes several recommendations to promote the learning of Pakistani ESL learners of English. This study suggested valuable insights for the syllabus designers while designing the syllabus of the bachelor's program among public universities. The identification of the important role of willingness to write suggested the policymakers focus on the willingness of the students towards writing. The promotion of willingness among students can increase the level of interest having a positive role in enhancing writing performance. Thus, policymakers should develop effective strategies to improve willingness levels. Additionally, the management of universities and the teachers should also focus on increasing the level of interest among students. Furthermore, this study suggested that Pakistani universities promote metacognitive strategies. Most importantly, the promotion of planning is key to promoting writing performance, however, along with the promotion of planning, the promotion of willingness cannot be neglected.

STUDY LIMITATIONS AND FUTURE DIRECTIONS

While the exploration of the relationship between planning, willingness to write, and writing performance among ESL students contributes significantly to applied linguistics, this study experienced certain limitations that can guide future research. One notable limitation is the focus on a single metacognitive strategy, namely planning, neglecting other important strategies such as monitoring and evaluating. Future studies should consider incorporating a broader range of metacognitive strategies to provide a more comprehensive understanding of their impact on writing performance. Additionally, the geographical limitation of this study, confined to one province of Pakistan, is acknowledged. To enhance the generalizability of findings and to address regional variations, future research could extend its scope to encompass the entire nation or target specific areas, such as Sindh and Khyber Pakhtunkhwa (KPK), which may present distinct challenges related to student writing performance. In summary, the identified limitations pave the way for future studies to explore a more diverse range of metacognitive strategies and broaden the geographical scope. Further, this study will contribute to a more comprehensive understanding of the factors that affect writing performance among ESL students.

REFERENCES

Abbas, N., Ashiq, U. & Abrar ul haq, M. (2018) Gap between acquired and required English learning objectives for the primary school students: Empirical evidence from Sargodha (Pakistan). *Cogent Social Sciences, 4*(1), pp:1457421.

Abdolrezapour, P. (2013) The relationship between emotional intelligence and EFL learners' writing performance. *Procedia-Social and Behavioral Sciences,* 70, pp:331-339.

Alakrash, H. & Razak, N. (2020) Towards the Education 4.0, Readiness Level of EFL Students in Utilising Technology-Enhanced Classroom. *International Journal of Innovation, Creativity and Change, 13*(10), pp:161-182.

Alfaki, I. M. (2015) University students'english writing problems: diagnosis and remedy. *International Journal of English Language Teaching,* 3(3), pp:40-52.

Alnufaie, M. & Grenfell, M. (2013) EFL Writing Apprehension: The Macro or the Micro? *Journal of Arts and Humanities,* 2(3), pp: 79-89.

Aripin, N., & Rahmat, N. H. (2021) Metacognitive writing strategies model used by ESL writers in the writing process: A study across gender. *International Journal of Asian Social Science,* 11(1), pp:1-9.

Aziz, A., Umer, K. & Zaidi, S. N. B. (2023) Maladaptive Perception, Protection Motivation and Health Protective Behavior: the Application of Protection Motivation Theory in Tourism Industry Amidst the Digital Revolution. *Business Review of Digital Revolution*.

Baron, R. M. & Kenny, D. A. (1986) The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology,* 51(6), pp:1173-1182.

Basöz, T. & Erten, I. H. (2018) Investigating Tertiary Level EFL Learners' Willingness to Communicate in English. *English Language Teaching,* 11(3), pp:78-87.

Bourdin, B. & Fayol, M. (2000) Is graphic activity cognitively costly? A developmental approach. *Reading and Writing,* 13(3), pp:183-196.

Brubacher, K. (2011) *Education and the Unschooled Student: Teachers' Discourses on Teaching Elementary School English Literacy Development Students.* (Doctoral Dissertation), University of Toronto.

Camacho, A. Alves, R. A., & Boscolo, P. (2021) Writing motivation in school: A systematic review of empirical research in the early twenty-first century. *Educational Psychology Review,* 33(1), pp:213-247.

Channa, M. A., Nordin, Z. S., Siming, I. A., Chandio, A. A. & Koondher, M. A. (2015) Developing reading comprehension through metacognitive strategies: a review of previous studies. *English Language Teaching,* 8(8), pp:181-186.

Cheah, J.-H., Sarstedt, M., Ringle, C. M., Ramayah, T. & Ting, H. (2018) Convergent validity assessment of formatively measured constructs in PLS-SEM: On using single-item versus multi-item measures in redundancy analyses. *International Journal of Contemporary Hospitality Management*.

Chung, W. S. & Leung, M.T. (2016) *The structural relationships between foreign language speaking anxiety, perceived English competence, English learning motivation, willingness to communicate, English learning engagement and motivational intensity in Hong Kong secondary students.* Paper presented at the Singapore Conference of Applied Psychology.

Chuo, T.W. I. (2007) The Effects of the WebQuest Writing Instruction Program on EFL Learners' Writing Performance, Writing Apprehension, and Perception. *Tesl-Ej,* 11(3), n3.

De Bernardi, B. & Antolini, E. (2006) Fostering students' willingness and interest in argumentative writing: An intervention study *Writing and Motivation,* pp: 183-201, Brill.

Ellis, A. K., Bond, J. B. & Denton, D. W. (2012) An analytical literature review of the effects of metacognitive teaching strategies in primary and secondary student populations. *Asia Pacific Journal of Educational Development (APJED),* 1(1), pp:9-23.

Esfandiari Dehmajnoni, H. & Amjadiparvar, A. (2022) The Effect of Online Planning and Strategic Planning in CALL-Based TBLT on Iranian EFL Learners' Willingness to Communicate. *Journal of Language Horizons*.

Esmaeili, H. (2002) Integrated reading and writing tasks and ESL students' reading and writing performance in an English language test. *Canadian Modern Language Review,* 58(4), pp:599-620.

Fareed, M., Khan, I. & Akhtar, H. (2021) The Causes of English Writing Anxiety among Pakistani ESL Students: Perceptions of Teachers and Students. *Pakistan Journal of Humanities and Social Sciences,* 9(1), pp:21-27.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive–developmental inquiry. *American Psychologist,* 34(10), pp:906.

Flower, L. & Hayes, J. R. (1981) A cognitive process theory of writing. *College Composition and Communication,* 32(4), pp:365-387.

Flower, L. & Hayes, J. R. (2004) A cognitive process theory of writing. *Literacy: Major themes in education*, pp:40-63.

Graham, S., Harris, K. R., Fishman, E., Houston, J., Wijekumar, K., Lei, P.-W. & Ray, A. B. (2019) Writing skills, knowledge, motivation, and strategic behavior predict students' persuasive writing performance in the context of robust writing instruction. *The Elementary School Journal,* 119(3), pp:487-510.

Graham, S., Harris, K. R., Kiuhara, S. A. & Fishman, E. J. (2017) The relationship among strategic writing behavior, writing motivation, and writing performance with young, developing writers. *The Elementary School Journal,* 118(1), pp:82-104.

Hair Jr, J. F., Hult, G. T. M., Ringle, C. & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*: Sage Publications.

Hasanah, N. & Ali, S. M. (2020) The Students' Motivation in Writing through Mind Mapping at Tomakaka University of Mamuju. *Edumaspul: Jurnal Pendidikan,* 4(2), pp:341-346.

Hashemian, M. & Farhang-Ju, M. (2022) Comparative Effects of Direct and Metalinguistic Computer-Mediated Feedback on L2 Learners' Writing Ability and Willingness-to-Write. *Journal of Modern Research in English Language Studies,* 9(4), pp:119-142.

Hedgcock, J. & Lefkowitz, N. (1992) Collaborative oral/aural revision in foreign language writing instruction. *Journal of Second Language Writing,* 1(3), pp:255-276.

Henseler, J., Ringle, C. M. & Sarstedt, M. (2015) A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science,* 43(1), pp:115-135.

Huisman, B., Saab, N., van den Broek, P. & van Driel, J. (2019) The impact of formative peer feedback on higher education students' academic writing: a Meta-Analysis. *Assessment & Evaluation in Higher Education,* 44(6), pp:863-880.

Karlen, Y. (2017). The development of a new instrument to assess metacognitive strategy knowledge about academic writing and its relation to self-regulated writing and writing performance. *Journal of Writing Research,* 9(1), pp:61-86.

Khajavy, G. H., Ghonsooly, B., Hosseini Fatemi, A. & Choi, C. W. (2016) Willingness to communicate in English: A microsystem model in the Iranian EFL classroom context. *Tesol Quarterly,* 50(1), pp:154-180.

Khurram, F. (2023). Role of Artificial Intelligence Bots in Digital Marketing: A Cross-Sectional Study. *Business Review of Digital Revolution*.

Kojima, M. (2020). A Study Synthesis on the Relationship between Second Language Writing Performance and Text Features—Focusing on Text-based Measures and Study Features.

Le, M., Cao, J. T. & Yaoyuneyong, G. (2019) The Impact of Brand Love, Brand Attachment, and Electronic Shopping Experience Satisfaction (eSES) on Consumer Willingness to Write Reviews.

Lefever, R. & Carati, D. (1995). Intrinsic patterns in anisotropic multicomponent diffusive systems at equilibrium. *Physica A: Statistical Mechanics and its Applications,* 213(1-2), pp:90-104.

Liang, H., Ye, L., Liang, W., Wang, R., Ge, F., Fan, L., Phan, K. (2019) Potential factors of specialists' willingness to write editorial and commentary: a retrospective study based on 5,091 invitations. *Annals of Translational Medicine,* 7(24).

Liao, F. & Roy, S. (2017) EFL students' perceptions of writing poetry in English: The effect of educational backgrounds and belief towards poetry. *The Journal of Literature in Language Teaching,* 6(1), pp:55-72.

Liao, M. T. & Wong, C. T. (2010) Effects of dialogue journals on L2 students' writing fluency, reflections, anxiety, and motivation. *Reflections on English Language Teaching,* 9(2), pp:139-170.

Limpo, T. & Alves, R. A. (2017) Written language bursts mediate the relationship between transcription skills and writing performance. *Written Communication,* 34(3), pp:306-332.

Madeng, M. & Palanukulwong, T. (2019) Low Proficiency Students' Attitudes toward English Writing, Dialogue Journal Writing and their Willingness to Write in English. *Academic Services Journal, Prince of Songkla University,* 30(3), pp:110-120.

Matthews, L. (2017) Applying multigroup analysis in PLS-SEM: A step-by-step process *Partial least squares path modeling* (pp: 219-243): Springer.

Mazancieux, A., Souchay, C., Casez, O. & Moulin, C. J. (2019) Metacognition and self-awareness in multiple sclerosis. *Cortex,* 111, pp:238-255.

Mirsane, M. & Khabiri, M. (2016) The effect of teaching communicative strategy on EFL learners' willingness to communicate. *Theory and Practice in Language Studies,* 6(2), p:399.

Nejad, M. E., Izadpanah, S., Namaziandost, E. & Rahbar, B. (2022) The mediating role of critical thinking abilities in the relationship between English as a foreign language learners' writing performance and their language learning strategies. *Frontiers in Psychology,* 13.

Nik, Y. A., Sani, B., Chik, M. N. W., Yusoff, K. & Hasbollah, H. R. (2010) The writing performance of undergraduates in the University of Technology Mara, Terengganu, Malaysia.

Noor, U., Younas, M., Khalid, S., Bakar, A. & Xu, Q. (2020) Analysing Common Errors in EFL Postgraduate Students in The Universities of Pakistan. *Revista Argentina de Clínica Psicológica,* 29(4), p:751.

Olinghouse, N. G., Graham, S. & Gillespie, A. (2015) The relationship of discourse and topic knowledge to fifth graders' writing performance. *Journal of Educational Psychology,* 107(2), p:391.

Puengpipattrakul, W. (2014) L2 learner's-instructor's win-win tactics through alternative assessment of writing. *NIDA Development Journal,* 54(4), pp:1-16.

Qin, L. & Zhang, J. L. (2019) English as a foreign language writers' metacognitive strategy knowledge of writing and their writing performance in multimedia environments.

Rafiee, M. & Abbasian-Naghneh, S. (2020) Willingness to Write (WTW): Development of a model in EFL writing classrooms. *Cogent Education,* 7(1), 1847710.

Rattanaintanin, S. (2017) *Using Dialogue Journals to Enhance Students' Writing Ability and Willingness to Orally Communicate.* (Doctoral Dissertation), Prince of Songkla University.

Robillos, R. J. & Thongpai, J. (2022) Computer-Aided Argument Mapping within Metacognitive Approach: Its Impact on Students' Argumentative Writing Performance and Self-Regulated Learning. *LEARN Journal: Language Education and Acquisition Research Network,* 15(2), pp:160-186.

Rochmah, B. (2020) The roles of different modes of planning on students'writing performance across learning styles. *Language-Edu,* 9(2), pp:1-10.

Sabir, M. S. A., Sharif, H. & Farooq, H. B. (2023) Writing Anxiety and Intrinsic Motivation in English as a Foreign Language of Undergraduates in Pakistan. *Journal of Positive School Psychology*, pp:1925–1939.

Samiullah & Haidar, S. (2022) English Writing and Social Stratification in Pakistan: Exploring the Role of SES on Students' Writing. *Reading & Writing Quarterly*, pp:1-16.

Shafique, A., Amjad, A., Khurshid, N. & Zubair, H. B. (2022) Analyzing The Contemporary Developments and Challenges in Teaching English Language in Pakistani Schools. *Ascarya: Journal of Islamic Science, Culture, and Social Studies,* 2(1), pp:65-69.

Sharrad, A. & Faravani, A. (2021a) Delving into the Relationships among Iraqi EFL Learners' Willingness to Write, Personality Types and Writing Ability. *KURMANJ; The Journal of Culture, Humanities and Social Science,* 3(1), pp:23-29.

Sharrad, A. & FARAVANI, A. (2021b) Delving into the Relationships among Iraqi EFL Learners' Willingness to Write, Personality Types and Writing Ability.

Shehzad, M. W., Alghorbany, A., Lashari, S. A., Lashari, T. A. & Razzaq, S. (2019) The interplay between pronunciation self-efficacy sources and self-efficacy beliefs: A structural equation modeling approach. *Indonesian Journal of Applied Linguistics,* 9(1), pp:177-187.

Takallou, F. (2011) The effect of metacognitive strategy instruction on EFL learners' reading comprehension performance and metacognitive awareness. *Asian EFL Journal,* 13(1).

Tarin, S. & Yawiloeng, R. (2022) Using Mind-Mapping to Develop EFL Students' Writing Performance. *English Language Teaching,* 15(11), pp:1-14.

Teng, F. (2020) The role of metacognitive knowledge and regulation in mediating university EFL learners' writing performance. *Innovation in Language Learning and Teaching,* 14(5), pp:436-450.

Teng, M. F., Qin, C. & Wang, C. (2022) Validation of metacognitive academic writing strategies and the predictive effects on academic writing performance in a foreign language context. *Metacognition and learning,* 17(1), pp:167-190.

Vocal, D. & Borong, N. L. (2022) Strategies for developing creativity, critical, communication and collaboration: A comparative teaching using explicit and metacognitive strategies. *European Journal of Social Sciences Studies,* 7(4).

Widiastuti, I. A. M. S. (2018) EFL Students' Writing Interactions Through Weblog and Self-assessment. *International Journal of Humanities, Literature and Arts,* 1(1), pp:38-45.

Wilson, J. (1985) The role of metacognition in English education. *English Education,* 17(4), pp:212-221.

Won, N. C., Wan, C. Y. & Sharif, M. Y. (2017) Effect of leadership styles, social capital, and social entrepreneurship on organizational effectiveness of social welfare organization in Malaysia: Data screening and preliminary analysis. *International Review of Management and Marketing,* 7(2), pp:117-122.

Xing, M., Wang, J. & Spencer, K. (2008) Raising students' awareness of cross-cultural contrastive rhetoric via an e-learning course. *Language Learning & Technology,* 12(2), pp:71-93.

Zhang, L. & Seepho, S. (2013) Metacognitive strategy use and academic reading achievement: insights from a Chinese context. *Electronic Journal of Foreign Language Teaching,* 10(1).

Zhang, L. J. & Qin, T. L. (2018) Validating a questionnaire on EFL writers' metacognitive awareness of writing strategies in multimedia environments *Metacognition in language learning and teaching* (pp:157-178) Routledge.

Appendix

Questionnaire for Planning

The following section has been designed to obtain your opinion about planning. For each statement, please indicate the extent to which you agree or disagree with the statement by **ticking or circling** an appropriate number on the five-point scale provided. Please read the following statement and mark accordingly: 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5= Strongly Agree

01	PLAN1	While English writing, I prefer planning the paragraph structure.	1	2	3	4	5
02	PLAN2	While English writing, I prefer planning to make an outline.	1	2	3	4	5
03	PLAN3	While English writing, I prefer planning about language features.	1	2	3	4	5
04	PLAN4	While English writing, I prefer setting up writing goals.	1	2	3	4	5
05	PLAN5	While English writing, I prefer planning time allocation.	1	2	3	4	5
06	PLAN6	While English writing, I prefer planning to do writing preparation.	1	2	3	4	5
07	PLAN7	While English writing, I prefer planning about efficient use of online resources.	1	2	3	4	5

Questionnaire for Willingness to Write

The following section has been designed to obtain your opinion about Willingness to Write. For each statement, please indicate the extent to which you agree or disagree with the statement by **ticking or circling** an appropriate number on the five-point scale provided. Please read the following statement and mark accordingly: 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5= Strongly Agree

24	WTR1	I am willing to develop notes in English.	1	2	3	4	5
25	WTR2	I am willing to write in English whether there are grammatical errors.	1	2	3	4	5
26	WTR3	I am willing to read and respond to mistakes to my friend English writing.	1	2	3	4	5
27	WTR4	I am willing to write journals in English.	1	2	3	4	5
28	WTR5	I am willing to write down what happens in my daily life in English.	1	2	3	4	5
29	WTR6	I am willing to write dialogue journal outside classroom	1	2	3	4	5
30	WTR7	I am willing to improve my English writing skills through writing practice.	1	2	3	4	5

Interview Protocols

Planning

(a) How does planning the paragraph structure while writing help you compose the text better?

(b) How does planning to make an outline while writing help you compose the text better?

Willingness to Write

(a) How does willingness to take notes in English affect your English writing composition?

(b) How does WTW in English, irrespective of grammatical errors, affect your writing composition?

(c) How does WTW down what happens in your daily life in English affect your writing composition?

(d) How does willingness to practice writing in English affect your writing composition?

List of Referees - Volume 46 (2023)

Prof. G. D. R. U. U. Abeyrathne
Dept. of Political Science,
Univ. of Peradeniya.

Dr N. K. Abeysekera
Dept. of Language Studies,
The Open Univ. of Sri Lanka.

Prof. S. W. Amarasinghe
Dept. of Sociology,
Univ. of Ruhuna.

Dr Harini Amarasuriya
The Parliament of Sri Lanka

Prof. Bhadra J. H. Arachchige

Dr Kaushalya Ariyarathne
Centre for the Study of Human Rights,
Univ. of Colombo.

Dr Asantha U. Attanayake Barborich

Dr R. C. Bamunusinghe
Postgraduate Institute of Management,
Univ. of Sri Jayewardenepura.

Prof. Tilak Wijethunga Bandara
Dept. of Geography,
Univ. of Peradeniya

Dr B. M. S. G. Banneheka
Dept. of Statistics,
Univ. of Sri Jayewardenepura.

Dr A. M. K. S. A. Boyagoda
Dept. Demography,
Univ. of Colombo.

Dr Khwaja Abdul Cader
Business Management School,
Sri Lanka.

Dr C. M. K. N. K. Chandrasekara
Dept. of Geography,
Univ. of Colombo.

Prof. Sunil Chandrasiri
Dept. of Economics,
Univ. of Colombo.

Prof. S. S. Colombage
Dept. of Social Studies,
The Open Univ. of Sri Lanka.

Dr (Mrs) D. V. M. De Silva
Dept. of Secondary and
Tertiary Education,
The Open Univ. of Sri Lanka.

Dr Viruli Ajanta de Silva
Postgraduate Institute of Management,
Univ. of Sri Jayewardenepura.

Prof. Ajantha Dharmasiri
Postgraduate Institute of Management,
Univ. of Sri Jayewardenepura.

Prof. S. A. D. Dias

Dr P. S. S. Dias
Sri Lanka Association for the
Advancement of Quality &
Productivity (SLAAQP).

Dr G. R. K. Dissanayake
Dept. of Psychology,
Univ. of Peradeniya.

Prof. Nishara Fernando
Dept. of Sociology,
Univ. of Colombo.

Prof. M. G. N. A. S. Fernando
Univ. of Colombo School of
Computing.

Prof. E. A. Gamini Fonseka
Dept. of English and Linguistics,
Univ. of Ruhuna.

Prof. C. E. Guneratne
Dept. of Legal Studies,
The Open Univ. of Sri Lanka.

Dr M. W. A. P. Jayatilaka
Center for Poverty Analysis,
Sri Lanka.

Prof. A. K. W. Jayawardane
Dept. of Civil Engineering,
Univ. of Moratuwa.

Dr A. A. Kadirgamar
Dept. of Sociology,
Univ. of Jaffna.

Dr K. Kalainathan
Dept. of Finance & Accountancy,
Univ. of Vavuniya.

Prof. S. P. Karunanayaka
Faculty of Education,
The Open Univ. of Sri Lanka.

Dr Malraj B. Kiriella
South Asia Multidisciplinary
Advisory Services.

Prof. Sasikala Kugamoorthy
Dept. of Secondary &
Tertiary Education,
The Open Univ. of Sri Lanka.

Prof. Shamala Kumar
Dept. of Agricultural Economics &
Business Management,
Univ. of Peradeniya.

Prof. P. H. T. Kumara
Dept. of Public Administration,
Univ. of Uva Wellassa

Dr K. A. Lalithadheera
National Human Resource
Development Council of Sri Lanka,
Ministry of Policy Planning,
Sri Lanka.

Dr S. N. Morais
Dept. of Social Studies,
The Open Univ. of Sri Lanka.

Dr N. S. J. Nawaratne
Dept. of Human Resources Management,
Univ. of Colombo.

Dr F. M. Nawastheen
Dept. of Secondary & Tertiary Education,
The Open Univ. of Sri Lanka.

Dr S. P. Premaratne
Dept. of Economics,
Univ. of Colombo.

Dr T. A. Mahinda Pushpakumara
Dept. of Economics,
Univ. of Colombo.

Dr. Samantha Rathnayake
Postgraduate Institute of Management,
Univ. of Sri Jayewardenepura.

Prof. Dinesh Samarasinghe
Dept. of Industrial Management,
Univ. of Moratuwa.

Prof. Gameela Samarasinghe
Dept. of Sociology,
Univ. of Colombo.

Dr H. U. S. Samaraweera
Dept. of Sociology,
Univ. of Colombo.

Dr K. D. D. G. Silva

Prof. Kalinga Tudor Silva
Dept. of Sociology,
Univ. of Peradeniya.

Prof. Swarna Ukwatta
Dept. of Demography,
Univ. of Colombo.

Dr Ramila Shadina Ali Usoof
Dept. of Psychology,
Univ. of Peradeniya.

Dr T. M. H. A. Usoof
Dept. of Statistics & Computer Science, Univ. of Peradeniya.

Prof. Manjula Vithanapathirana
Dept. of Educational Psychology,
Univ. of Colombo.

Dr L. G. C. N. Wadasinghe
Postgraduate Institute of Medicine (PGIM), Univ. of Colombo.

Dr Shermal Wijewardene
Dept. of English,
Univ. of Colombo.

Prof. Nilmini Rose Wijeyesekera
Dept. of Private & Comparative Law, Univ. of Colombo.

AUTHOR INDEX - VOL. 46 - 2023

SUBJECT INDEX - VOL. 46 - 2023

SRI LANKA JOURNAL OF SOCIAL SCIENCES

SCOPE OF THE JOURNAL

Sri Lanka Journal of Social Sciences (SLJSS) was launched in 1978 as a premier social science journal in Sri Lanka. Published twice a year (in June and December), it entertains social science contributions in the form of Research articles, Review articles, Work-in-progress articles and Correspondence, and publishes Book Reviews. The journal publishes social science articles in Sinhala, Tamil and English languages, on topics relevant to Sri Lanka in particular and South Asia in general. All papers are subjected to double-blind peer-review. The journal provides open access to all its articles through the Sri Lanka Journals Online (SLJOL) forum supported by the International Network for the Availability of Scientific Publications (INASP). All articles in the journal are published under the Creative Commons License 'Attribution-No Derivatives - CC BY-ND 4.0' since 2018. SLJSS is indexed in SCOPUS and ESCI.

CATEGORIES OF SUBMISSION

Research Articles
Research articles are full length papers based on original research. They should contain an abstract (250 words), 3-5 keywords, a qualitative or quantitative analysis of primary and/or secondary data and a list of references (Harvard style). The word limit for research articles is 8,000 to 10,000 words.

Review Articles
Critical reviews of existing literature on selected social sciences topics are welcome, provided that they are pertinent to Sri Lanka and/or South Asia. A review article should have an abstract (250 words), 3-5 keywords, a critical engagement with existing research and a list of references (Harvard style). Review articles should have of a word count of 5,000 to 8,000 words.

Work-in-progress
Work-in-progress are short essays presenting on-going research. They should be well-structured and presented with an abstract (250 words), 3-5 keywords, a description of the current status of the study, preliminary findings and a list of references (Harvard style). The prescribed word limit is 3,000 to 4,000 words.

Book Reviews
Publishers and authors who wish to have their books reviewed in the journal must submit books, published within the past 3 years, on social science topics relevant to Sri Lanka and/or South Asia, to the Journal Publication Unit of NSF. The journal will have selected books reviewed by experts in the relevant subjects. A book review will have a word limit of 2,500 to 3,000 words.

Correspondence
This category hosts articles covering important social science events or any other academic news of interest to social scientists, and articles presenting views on issues related to social science activities. Further, correspondence will be accepted regarding one or more articles in the preceding two issues of the Journal. Publication will be made at the discretion of the Editorial Board. The prescribed word limit is 1,000 to 1,500 words.

SRI LANKA JOURNAL OF SOCIAL SCIENCES

Volume 46 Number 2 December 2023

CONTENTS