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EDITORIAL NOTE

We are delighted to announce the publication of the first issue of Volume 5 of the Sri Lanka Journal of Social Sciences and Humanities (SLJSSH). As a biannual, interdisciplinary journal, SLJSSH is dedicated to fostering research in the social sciences and humanities. We invite scholars to submit theoretical, empirical, policy, and practitioner-focused research that contribute to global academic discourse. Our mission is to create a platform for diverse research, facilitating collaboration among experts across the social science community.

All submissions to SLJSSH undergo a rigorous double-blind peer-review process, ensuring the highest quality standards. The Editorial Board carefully reviews each submission to maintain the journal's integrity. As a cited journal in the Sri Lanka Journals Online (SLJOL) database, SLJSSH has experienced a steady increase in readership, submissions, and citations. Our growing reputation reflects our commitment to impactful research.

The success of SLJSSH is a result of the collective efforts of our editorial team, reviewers, authors, and the continued support of the Dean of the Faculty of Social Sciences and Languages at Sabaragamuwa University of Sri Lanka. We are grateful for their guidance, hard work, and commitment.

The research papers in this journal contribute valuable insights across diverse disciplines, addressing critical contemporary issues. The study on AWCMR, monetary policy, and inflation in Sri Lanka evaluates the role of call money rates in economic stability and monetary transmission. A study on ecological environments and metacognition examines their impact on English learning performance among school children. The paper on climate vulnerability in agriculture highlights the risks posed by environmental changes to food security and rural livelihoods. The study on morphology and vocabulary in academic writing explores linguistic challenges in English proficiency. Research on social media and peer pressure investigates their influence on youth behavior and decision-making. Lastly, research on cultural integration in Chinese language instruction explores effective pedagogical approaches for university students. Collectively, these studies provide significant theoretical and practical contributions to their respective fields, supporting policy formulation, educational advancements, and socio-economic development.

As the Editor-in-Chief of SLJSSH, I would like to express my gratitude to the Coordinating Editor, Editors, Reviewers, Text Editor, and Editorial Assistant for their dedication and expertise. We appreciate the valuable contributions of our authors and look forward to your continued support as we strive to advance the journal's success. Thank you for your commitment to SLJSSH, and best wishes for your future contributions.

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The multi-disciplinary bi-annual double-blind peer-reviewed international journal published by the Faculty of Social Sciences and Languages, Sabaragamuwa University of Sri Lanka.

Faculty of Social Sciences and Languages, Sabaragamuwa University of Sri Lanka is pleased to present volume 4 issue 2 of the Sri Lanka Journal of Social Sciences and Humanities (SLJSSH) to provide the national and international scholars with an intellectual platform for the publication of a quality journal. This multi-disciplinary bi-annual international journal in English aims to promote studies in Social Sciences and Humanities and thereby cater to the needs of all researchers and academics looking forward to contributing their knowledge, skills, and abilities to the field of Social Sciences and Humanities. All articles in this journal are subject to a rigorous double-blind peer-review process followed by thorough scrutiny by the Editorial Board to ensure high academic and research standards before final publication.

The Role of Average Weighted Call Money Rate in Shaping Monetary Policy Transmission Mechanisms and Inflation Outcomes in Sri Lanka

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Abstract

This study aims to analyse the role of the Average Weighted Call Money Rate (AWCMR) which is the operating target of the current monetary policy stance of the Central Bank of Sri Lanka (the CBSL) under the Flexible Inflation Targeting (FIT) framework and how the measures and policy actions taken by the CBSL effectively pass-through the market in order to achieve the final target of inflation control of the Sri Lankan economy. This study consists of both quantitative and qualitative methodologies to assess the influence of the AWCMR on key market interest rates and its subsequent impact on controlling inflation. The quantitative analysis focuses on the relationship between the AWCMR and a few key market interest rates, including government Treasury bill rates, Average Weighted Lending Rates, Average Weighted Deposit Rates, and Average Weighted Fixed Deposit Rates, using the monthly data from January 2018 to December 2023. Further, the qualitative analysis examines the CBSL's dynamic monetary policy stance for inflation control and economic stabilisation, targeting the language and thematic content of CBSL communication to understand how such elements shape public expectations and institutional credibility. The findings of this study witnessed that the AWCMR acts as a crucial channel for the monetary policy transmission mechanism of the Sri Lankan economy and influences, in varying degrees, other market interest rates. Further, it emphasises the CBSL's policy actions and timely measures positively yielded in shaping inflation during the study period. By combining both quantitative and qualitative approaches, this study provides a comprehensive analysis of the mechanisms through which the CBSL manages monetary policy and communicates with the public. In addition, this contributes to the prevailing literature by integrating qualitative views into the largely quantitative domain of monetary policy analysis.

Keywords: Average Weighted Call Money Rate (AWCMR), Inflation Outcomes, Interest Rates, Monetary Policy Transmission, Sri Lanka

INTRODUCTION

Interest rates remain a crucial point in implementing monetary policy, enabling central banks to manage economic stability, control inflation, and effectively shape employment outcomes. Central banks worldwide adopt various approaches to achieve their price stability objectives. They adjust policy interest rates, which in turn influence market interest rates, to either stimulate economic growth or curb high inflation within a country. These decisions influence consumer spending, investments, and the general business environment with a time lag.

Central banks in advanced economies, like the Federal Reserve in the United States (FED) and the European Central Bank (ECB), often adjust their key policy interest rates to control inflation or mitigate the effects of a recession. Afterward the financial crisis of 2008, the FED reduced its key policy rate namely the Federal Funds Rate to near zero to pick up the economy. Further, during the COVID-19 pandemic period, the FED again reduced its policy interest rates and employed quantitative easing measures to address the economic impact. However, in response to increasing inflation in 2022-2023, the FED used a different approach by implementing substantial rate increases to support the stabilizing of market prices. Meanwhile, during the Eurozone crisis, the ECB used a strategy of deducting policy interest rates and implementing unconventional policy measures, such as negative interest rates, to stimulate lending in the market and spending throughout European economies. During 2023, facing growing inflation across the Eurozone, the ECB started to gradually increase its policy interest rates. The Bank of Thailand (BOT) substantially cut its main policy interest rate to increase domestic consumption and investment during crisis periods aiming at preventing a deeper economic slowdown. The Bangko Sentral ng Pilipinas (BSP) also adopted in policy rate cut to boost their economic activity. Further, in the 2008 crisis period, interest rates were reduced in several rounds to boost borrowing and investment. The Reserve Bank of

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India (RBI) also cut its policy interest rates substantially, with the repo rate being cut to historically low levels to ensure credit availability and stimulate economic activity. Further, the RBI announced targeted long-term repo operations to financial institutions to ensure credit flows, especially to sectors affected by the pandemic.

Figure 1: Standing rate corridor and AWCMR, Jan. 2017 – Nov. 2024
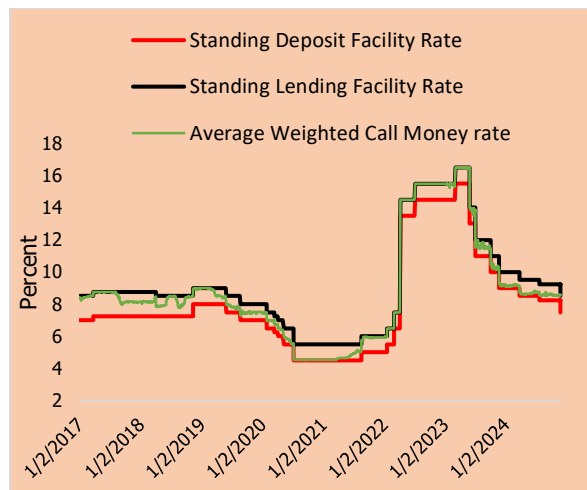
Source: Central Bank of Sri Lanka, 2017-2024

The CBSL also employs various policy tools, such as Open Market Operations (OMOs), policy interest rates, and Statutory Reserve Requirements (SRR), to influence short-term interest rates. These tools are aligned to maintain price stability and promote sustainable economic growth. However, previous studies have shown that the monetary policy transmission mechanism's efficacy in Sri Lanka was inadequate, resulting in a slow pass-through from policy interest rates to other market interest rates. The AWCMR has increasingly emerged as a central element of monetary policy in Sri Lanka, serving as a operating target to influence short-term interest rates and manage inflation in recent times. It captures the cost that Licensed Commercial Banks (LCBs) incur for overnight borrowing in the inter-bank money market, effectively signalling prevailing liquidity conditions. As shown in Figure 1, the CBSL used its primary monetary policy tool, the Standing Rate Corridor (SRC)[2], to manage short-term interest rates in accordance with the prevailing monetary policy stance. This was achieved through its operating target, the AWCMR under the FIT framework. In response to inflation and broader economic developments, the CBSL adjusted the SRC, influencing the behaviour of the AWCMR accordingly. Existing literature highlights the importance of the AWCMR in shaping other market interest rates, including Treasury bills, prime lending, and deposit rates, which collectively impact consumption, investment, and overall economic performance. The studies have identified challenges related to the efficiency of AWCMR transmission, citing factors such as regulatory constraints, informal market dynamics, and unique external economic pressures faced by Sri Lanka. Recent research highlights the urgent need for effective monetary policy actions, especially in light of the country's rising inflation and fiscal sector burdens. Sri Lanka experienced historically highest inflation rates, reaching over 60 per cent in 2022 (Annual Report of Central Bank of Sri Lanka, 2022). This unprecedented inflation increase was driven by several factors, including fiscal sector imbalances, foreign exchange deficits, and global economic distractions.

In response, CBSL faced increasing pressure to implement effective monetary policies to stabilise prices and restore economic balance (International Monetary Fund, 2022).

Accordingly, this study aims to provide a comprehensive analysis of the AWCMR's role in shaping monetary policy transmission mechanisms and its implications for inflation in the Sri Lankan context. Further, this study bridges this research gap by analysing the role of AWCMR in Sri Lanka's monetary transmission mechanism and its impact on inflation. To achieve this, we focused on two main objectives. The first was to examine how the AWCMR influences key interest rates in Sri Lanka, and the second was to examine the impact of the CBSL's policy actions on inflationary outcomes within the country.

The first objective was examined using a quantitative approach, while the second objective was analysed through a qualitative approach.

LITERATURE REVIEW

The effectiveness of the monetary policy transmission mechanism is a vital aspect of central banking, reflecting how well monetary policy measures pass-through into expected economic outcomes such as price stability, output growth, and employment. The effectiveness of this process is determined by how quickly and predictably policy signals, like adjustments in other market interest rates or reserve requirements, impact financial institutions, households, and businesses, finally influencing aggregate demand and supply of the economy. However, the efficiency of the pass-through mechanism is often subject to changes due to factors, such as the complexity and maturity of financial markets, the degree of openness to global capital flows, and institutional aspects like regulatory frameworks. The study of effective monetary policy pass-through is stranded in numerous key economic theories that describe how central bank measures influence economic variables such as inflation, output, and employment. Such theories emphasis that via various channels like interest rates, credit, exchange rates, and asset prices, monetary policy changes affect the wider economy.

The interest rate mechanism, fixed in Keynesian economics, demonstrates that changes in the central bank's policy interest rates affect the economy by altering the cost of borrowing and the return on savings. Beyer, et al., (2024) have studied monetary policy pass-through in 30 European countries and found that liquidity has contributed to weak pass-through to deposit rates.

Meanwhile, the credit channel, part of the financial accelerator framework, emphasis how monetary policy affects the economy by influencing credit conditions and the balance sheets of firms and households. Ciccarelli, Maddaloni, and Peydró (2010) examine the role of the credit channel in monetary policy pass-through mechanism and find it to be broadly operational across different types of loans and economic channels. Their analysis reveals that incorporating the credit channel into economic models significantly intensifies the detected consequence of monetary policy shocks on the Gross Domestic Product (GDP) of the country. For firms the bank lending channel exerts the strongest influence, surpassing the effects of loan demand and firm balance-sheet channels while for

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[2] *With effect from 27 November 2024, the CBSL has shifted to a Single Policy Interest Rate Mechanism in place of Standing Rate Corridor.*

households the household balance-sheet channel and loan demand channel have a more pronounced impact.

The exchange rate channel in the monetary policy pass-through mechanism influences trade balances and inflation in open economies. Sadaroo and Mallikahewa (2017) studied the effectiveness of the exchange rate channel of the monetary policy transmission mechanism in Sri Lanka and found that monetary policy shocks, such as changes in interest rates and money supply, can influence the broader economy through exchange rate movements. However, the asset price channel proposes that changes in monetary policy affect wealth and consumer spending through effects on asset prices, such as stocks and real estate. Dan (2013) finds that the asset price channel significantly influences monetary policy transmission through its effects on wealth and consumption for households and companies.

The expectations channel, underpinned by rational expectations theory, emphasises how individuals' expectations about future policy actions influence economic behaviour today. Pioneered by economists like Muth (1961) and extended by Lucas (1972), suggests that credible and transparent monetary policy can shape inflation expectations and, therefore, wage and price-setting behaviour. Further, the bank lending channel emphasises how monetary policy affects banks' ability to lend. When central banks tighten their monetary policy stance, it becomes harder for banks to source funds, dropping their lending capability in terms of volumes. This drop in lending is mainly for small borrowers who depend on bank loans. This channel has been discovered in research by Bernanke and Blinder (1988), who stress that moves in monetary policy that affect bank reserves can have separate effects on lending activity.

These theories provide a robust framework for analysing the various channels through which monetary policy actions can affect an economy. Each theory offers insights into different aspects of the transmission mechanism, and together they form a comprehensive basis for understanding the complexities of monetary policy impact. Looking at the Sri Lankan context, since the AWCMR is the operating target to maintain price stability in Sri Lanka by exploring its effectiveness and limitations, this review seeks to illuminate how the AWCMR contributes to achieving price stability objectives within a dynamic economic environment.

Amarasekara (2005) emphasised that, while there is a quick and nearly complete pass-through from the CBSL policy interest rates to inter-bank call money market rates, the transmission from call money market rates to commercial bank retail interest rates is slow and incomplete due to limited competition in the financial sector, collusion among banks, issues related to adverse selection and moral hazard, the menu costs faced by commercial banks, customer switching costs, inelastic demand for banking services, risk-sharing behaviours, consumer irrationality, and the high proportion of fixed-rate loans and deposits.

Perera (2016) concludes that interest rate pass-through in Sri Lanka is sluggish and incomplete. While short-term market lending rates, especially prime lending rates, adjust quickly and nearly fully, most other market interest rates show slow and partial adjustments. In the second part of the study, it was found that an unexpected rise in short-term market interest rates (a restrictive monetary policy shock) leads to decreases in both real GDP and consumer prices. The analysis also highlights that such an increase in short-term interest rates affects real GDP and consumer prices through various channels, including interest rates, credit, exchange rates, and asset prices. The results suggest that while all these channels play a significant role in the pass-through of the monetary policy, the interest rate channel remains the main channel among them in the Sri Lankan context.

Abeygunawardana (2017), argues that fiscal dominance will be a significant constraint on the successful implementation of an Inflation Targeting Framework (ITF), particularly in a context where domestic monetary policy has historically played a secondary role to fiscal operations, rather than serving as a tool for managing market liquidity.

Perera (2018) examined the behaviour of the prime lending rate in Sri Lanka from January 2004 to June 2013. The main objective of the research was to identify the factors affecting the prime lending rate in Sri Lanka, with particular emphasis on the persistence of the prime rate and any asymmetries in its movement. The result of this study emphasises that the downward rigidity of the Average Weighted Prime Rate (AWPR) during periods of monetary easing has been a point of criticism. This study highlights that, alongside the call money market rate, prime rate persistence remains a key factor in determining the prime lending rate in Sri Lanka.

Jegajeevan, Perera, and Kannangara (2019) explored the pass-through mechanism of monetary policy to identify changes over time and whether the transmission process exhibits time-dependent responses. They carried out a two-stage analysis to examine the pass-through of the CBSL's policy interest rates to short-tenure money market interest rates specifically AWCMR and the pass-through from money market rates to retail lending and deposit rates. The first part of this research revealed a nearly complete pass-through of short-run and long-run from policy interest rates to AWCMR. The second part of this paper discusses the evidence of overpass-through from AWCMR to AWPR in the long run. However, it shows the pass-through from AWCMR to Average Weighted Lending Rate (AWLR) in the short-run was fairly low, though it was higher in the long run, but still not complete. Further, for market deposit rates, pass-through of the short-run was weak, with slow adjustment speeds while it was identified pass-through of the long-run was nearly complete for Average Weighted Fixed Deposit Rate (AWFDR) but somewhat lower for Average Weighted Deposit Rate (AWDR).

Kannangara and Perera (2020) examine the distributional impact of monetary policy in Sri Lanka assessing the impact of monetary policy on income distribution in Sri Lanka. The study identifies monetary policy shocks by estimating their causal effect on inequality, using various measures of inequality to capture the dynamics of income distribution. The study concludes that although there is some evidence of distributional effects of monetary policy in Sri Lanka, the long-term and strong effects of monetary policy on inequality remain unclear. Furthermore, income distribution

does not appear to influence the transmission mechanism of monetary policy.

Meanwhile, Jahufer, A. and Hanainy, F. (2023) have studied, the effects of monetary shocks in the Sri Lankan economy and observed that reserve money has impacts on all other monetary variables with less percentage. Furthermore, aggregate money supply also has some impact on other monetary variables similar to reserve money.

International Monetary Fund (IMF) (2024) studied Sweden's monetary policy transmission and found that monetary policy transmission to market interest rates has been higher in Sweden than in other advanced economies, although weaker for some rates compared to historical tightening. RenZhi, N. and Beirne, J. (2024), also examined the impacts of global factors on monetary policy transmission in Emerging Economies and identified that adverse global shocks, higher global financial market uncertainty, and global climate change, could dampen the transmission of monetary policy. Further, a higher level of financial development can partially offset the dampening effects of global factors while a higher degree of capital account openness and trade openness further amplify the impact of global factors.

Musthafa, Le, and Suardi (2024) examine Sri Lanka's monetary policy transmission mechanism using a Vector Auto Regression (VAR) model for the period of 2003 to 2019. They find that unforeseen variations in monetary policy reduce economic output, the money supply, and private-sector bank lending. A tight monetary policy effectively contains inflation in the post-conflict period and in the post-conflict recovery period, both interest rate and exchange rate channels show a leading role, while the credit channel reacts more slowly.

These studies collectively illuminate the complexities associated with the role of AWCMR in controlling inflation and shaping monetary policy transmission mechanism in Sri Lanka. The research underscores the interaction between the AWCMR and other interest rates while highlighting the external and internal economic challenges that limit policy effectiveness. The literature indicates a need for additional empirical analysis on how to optimise the AWCMR within the distinct framework of Sri Lanka's economy, particularly given the rising inflationary pressures and fiscal constraints.

MATERIALS AND METHODS

To achieve the first objective of this study, monthly data spanning from January 2018 to December 2023 was used. Data was sourced from the CBSL records, supplemented by macroeconomic indicators from IMF and World Bank. Accordingly, when describing the relationship between the AWCMR and other market interest rates, several key interest rates were identified. Those include Treasury bill Rates, AWLR, AWPR, AWDR, and AWFDR.

The second objective examines various tools to analyse monetary policy statements, offering exploratory insights into the effectiveness of the CBSL's monetary policy transmission process. Accordingly, the main data for this study comprise selected twelve monetary policy review statements of the CBSL from January 2018 to December 2023 directly from the CBSL official website.

To maintain consistency, only the English versions of the statements were analysed. Additional data on policy interest rates, inflation, and inflation expectations were sourced from the Annual Reports of the CBSL for the same period.

The methodology of this study is organised around two main objectives, each utilising different philosophical, methodological, and analytical framework. These frameworks aim to gather both quantitative and qualitative insights regarding the role of the AWCMR in the monetary policy transmission mechanism of Sri Lanka and its impact on inflation outcomes.

For the first objective, "examine how AWCMR influences key interest rates in Sri Lanka," a positivist research philosophy is employed, focusing on measurable relationships and objective analysis of economic data. The quantitative approach utilises econometric modelling of the Autoregressive Distributed Lag (ARDL) model to explore causal relationships between the AWCMR and other market interest rates, including the Treasury bill rates, AWPR, AWLR, AWDR and AWFDR. The choice of the model for this study depends on two factors. First, is the ability to separate short-term fluctuations from long-term equilibrium effects in monetary policy transmission. It is particularly useful for understanding how monetary policy changes (interest rate adjustments) impact inflation, output, or exchange rates over time. For instance, CBSL's policy rate change might have immediate effects on short-term credit markets, but the full impact on inflation may take years to materialise. Therefore, we believe ARDL is ideal to analyse our research objective. Second, the ARDL model is well-suited for data series that include both stationary and non-stationary variables, a common feature of time series data. Since the variables selected for this study comprise both stationary and non-stationary components, the ARDL model was identified as the best fit for our analysis.

To explore the underlying relationship of the above variables, a unit root test was used to identify whether time series variables are stationary or non-stationary using the Augmented Dickey-Fuller (ADF) test. For non-stationary variables, the unit root test was used to avoid the problem of spurious regressions as follows. The equation is derived as follows;

$$Y_t = \rho Y_{t-1} + U_t$$

Here, Y_t represents the time series variable being tested for stationarity, ρ represents the coefficient that determines whether the series has a unit root ($\rho = 1$ indicates non-stationarity), Y_{t-1} represents the lagged value of Y_t, and the U_t shows the error term.

To capture dynamic interrelationships and potential causal effects in both the short-term and long-term, the ARDL model was employed. For the purpose of lag selection, we used the Akaike Information Criterion (AIC) in EViews via automatic lag selection. Accordingly, for each variable we derived,

$$Y_t = \alpha + \sum_{i=1}^{p} \beta_i\, Y_{t-1} + \sum_{j=1}^{q} y_j\, X_{t-1} + \varepsilon_t$$

Where α is the constant term (intercept), β_i represents the short-run coefficients for the lags of the dependent variable of Y, y_j represents the short-run coefficients for the lags of the independent variable of X = AWCMR, and ε_t is the error term. p and q are the optimal lag lengths for the dependent and independent variables, respectively.

Additionally, to find the long-term impact ARDL bounds test was used and then through the Error Correction Term (ECT) it is expected to find whether there is a long-run impact for other interest rates. The ARDL bounds test is an important tool for testing long-run relationships between variables, particularly in macroeconomics as it allows us to use a mix of stationary and non-stationary data. Further, this was effective even in small samples and directly estimated both short-run and long-run relationships.

The second objective, "To evaluate the impact of AWCMR-driven interest rate adjustments on inflationary outcomes in Sri Lanka," is framed within an interpretivist philosophy. This approach is particularly effective for understanding context-specific impacts, especially in a policy environment where textual and thematic analysis can reveal insights into the central bank's intentions and strategies. Accordingly, to study the second objective, we employ Thematic Analysis (TA) as a main tool through manual coding to systematically identify, analyse, and interpret patterns within qualitative data used for this study. Utilising a qualitative methodology, we analyse the 12 monetary policy reviews of CBSL to provide a detailed exploration of the AWCMR's effectiveness in managing inflation from 2018 to 2023. By concentrating on periods of monetary policy tightening (2017-2018, 2022) and easing (2019-2020, early 2023), the purposive sampling captures crucial inflationary and other economic stress periods, enhancing the relevance of the findings. Here we utilise a thematic analysis strategy, focusing on policy documents from different phases of monetary policy tightening and easing. The study will utilise secondary qualitative data, specifically monetary policy reviews from 2018 to 2023. We have categorised this full period into four sub-periods which include tightening and relaxing monetary policy cycles. Accordingly, 01 January 2018 to 30 May 2019 (tight monetary policy stance), 31 May 2019 to 18 August 2021 (accommodative monetary policy stance), 19 August 2019 to 31 May 2023 (tight monetary policy stance) and 01 June 2023 to 31 December 2023 (accommodative monetary policy stance). By reviewing 12 monetary policy reviews for these sub-periods, we have identified key themes on a broad basis, Market Interest Rates, Inflation Control, Expectations and Targets, Monetary Policy Stance and Policy Rate Corridor, Money, Credit Growth, and Private Sector Borrowing and lastly Global and Domestic Economic Conditions.

RESULTS AND DISCUSSION

The data described in the previous section were used to carry out the analysis by employing the econometric models and qualitative approach explained earlier. Descriptive statistics were obtained as shown in Table 1 for the variables that are used for the study. AWCMR and AWDR have close mean and median values, indicating symmetry. AWPR has the highest standard deviation, indicating that it fluctuates the most. Treasury bill rates also showed significant volatility. However, AWLR has the least variation, meaning its values are more stable.

Table 1: Descriptive statistics

	AWCMR	AWDR	AWFDR	AWLR	AWPR	T_B_91_D_	T_B__182_D_	T_B__364_D_
Mean	8.77661	8.71396	11.01073	13.51021	12.34135	11.58233	11.69251	11.69225
Median	8.16555	8.67500	10.83000	13.73500	11.41500	8.59600	9.13995	9.68989
Maximum	16.49302	15.23000	19.84000	18.70000	28.25000	33.05474	32.53000	30.01727
Minimum	4.52358	4.75000	5.62000	9.37000	5.65000	4.51333	4.53350	4.80900
Std. Dev.	3.20328	2.76365	3.76214	2.36373	5.55122	7.74843	7.39255	6.73749
Skewness	1.02710	0.78185	0.80860	0.21600	1.43311	1.64431	1.66028	1.66029

Source: Developed by author, 2025

Table 2: Unit root test – ADF

Variable	Level		1st Difference		2nd Difference		Process
	Static.	*Prob.*	*Static.*	*Prob.*	*Static.*	*Prob.*	
AWCMR	-1.943168	0.31144	-5.51110	0.00001			I(1)
5% Level	-2.892536		-2.89254				
AWDR	-3.40873	0.01303	-2.00549	0.28411	-9.32539	0.00000	I(2)
5% Level	-2.892536		-2.89254		-2.89287		
AWPR	-2.178163	0.21560	-4.36550	0.00060			I(1)
5% Level	-2.892536		2.89254				
AWLR	-3.11625	0.02870					I(0)
5% Level	-2.892536						
AWFDR	-3.161713	0.02550					I(0)
5% Level	-2.892536						
91-day T-bills	-2.602201	0.09623	-2.41552	0.14032	-13.29400	0.00010	I(2)
5% Level	-2.89323		-2.89323		-2.89323		
182-day T-bills	-2.431421	0.13606	-2.85534	0.05468	-13.32580	0.00010	I(2)
5% Level	-2.89323		-2.89323		-2.89323		
364-day T-bills	-2.543682	0.10868	-3.05871	0.33316			I(1)
5% Level	-2.89323		-2.89323				

Source: Developed by author, 2025

First, to understand the mechanisms through which the AWCMR affects other market interest rates, we analyse the results of the ADF test as given in Table 2, which helps determine whether interest rate series, such as Treasury bill rates and deposit rates, are stationary or non-stationary, offering insights into their long-term stability and sensitivity to short-term fluctuations. This analysis is crucial for identifying whether the AWCMR consistently influences these rates over time, thereby indicating a transmission channel for monetary policy via short-term market rates.

The findings reveal that most variables, including the AWCMR, AWPR, and Treasury bill rates for 364-day maturities are non-stationary at their levels but become stationary after the first difference. This indicates that these variables are integrated in order I (1). In contrast, AWFDR and AWLR are stationary at their level, meaning it is integrated of order I (0) and does not require differencing. However, AWDR and Treasury bill rates for 91-day maturities and 182-day maturities do require a second difference to become stationary. As these are I (2), to run the ARDL model, it requires transformation of data, to reduce it to I (0) or I (1). The transformation was carried out by taking the first differencing of these variables ($\Delta Y_t = Y_t - Y_{t-1}$).

Table 3: ARDL model coefficients

	DAWDR (4,4 model)		AWFDR (3,2 model)		AWPR (3,4 model)		AWLR (2,2 model)	
Lag	Cof.	Prob.	Cof.	Prob.	Cof.	Prob.	Cof.	Prob.
AWCMR (-1)	0.15567	0.00002	0.22992	0.00000	0.58082	0.00032	0.13626	0.00063
AWCMR (-2)	-0.11156	0.00729	-0.14554	0.00034	-1.38119	0.00000	-0.19622	0.00000
AWCMR (-3)	-0.00492	0.90596			0.92414	0.00000		
AWCMR (-4)	-0.06237	0.03475			-0.20398	0.11187		

	D91 T_B (2,3 model)		D182 T_B (4,2 model)		364 T_B (4,2 model)	
Lag	Cof.	Prob.	Cof.	Prob.	Cof.	Prob.
AWCMR (-1)	-2.34598	0.00000	-2.53933	0.00000	-2.54001	0.00000
AWCMR (-2)	0.45823	0.29120	0.59228	0.03614	0.80751	0.00164
AWCMR (-3)	0.34136	0.12184				
AWCMR (-4)						

Source: Developed by author, 2025

For the purpose of model specification analysis, we have used previously explained variables; AWCMR as the independent variable and all other variables as dependent variables. The lag structure of the ARDL model was identified through the Akaike Information Criterion (AIC). Accordingly, as shown in Table 3, for AWDR and AWPR variables ARDL (4,4) model was used while for AWFDR, ARDL (3,2) model and for AWLR, ARDL (2,2) model was used. By examining how AWCMR impacted the other interest rates through an ARDL model we have identified the following for short-run and long-run. First, changes in AWCMR have significant delayed effects on AWDR, as shown by the significant positive coefficient for ΔAWCMR and the subsequent negative coefficients for Δ2AWCMR. The positive one-period lag suggests that monetary policy changes (as reflected by AWCMR require at least a month to influence deposit rates (AWDR). The negative second lag implies a correction mechanism, where the initial increase in deposit rates due to changes in AWCMR is counterbalanced over time. Meanwhile, changes in AWCMR affect AWFDR primarily with a lag of one month (ΔAWCMR), demonstrating the monetary policy transmission mechanism. A positive effect at lag 1 indicates that an increase in call money market rates leads to a rise in fixed deposit rates in the short run. However, the negative effect

at lag 2 suggests a correction mechanism, where the initial increase in AWFDR is partially reversed over time. The study by, Musthafa, Le, and Suardi (2024) which provides a lagged analysis of the AWCMR's effect on AWDR and AWFDR shows that changes in AWCMR influence deposit rates after about a month, with the effects partially reversed in the following period, which is somewhat similar to findings of our study.

The AWLR exhibits strong persistence, with significant coefficients for its first and second lags, indicating that past values of AWLR heavily influence its current level. The AWCMR affects AWLR in both the current and lagged periods. The contemporaneous effect AWCMR and first lag ΔAWCMR are both positive, showing a short-run transmission mechanism. The second lag Δ2AWCMR is negative, suggesting a reversal or correction mechanism, consistent with monetary policy transmission where the initial effect on lending rates diminishes over time. Changes in AWCMR have both immediate and lagged effects on prime lending rates, with the strongest impacts occurring contemporaneously and after one and three months. Immediate (contemporaneous) and one-month lagged effects are positive, showing that increases in AWCMR push up prime rates. Similarly, Musthafa, Le, and Suardi (2024), found that AWLR shows persistence, with past values significantly affecting the current rates, and AWCMR impacting AWLR both immediately and with a one-month lag. The second lag, however, suggests a reversal of the initial impact, consistent with the delayed and incomplete pass-through. Moreover, Jegajeevan, Perera, and Kannangara (2019) confirm a nearly complete pass-through from CBSL rates to short-term money market rates, but a slower response to retail lending rates, particularly in the short run, with some overpass-through for lending rates in the long run.

By looking at the impact on Treasury bill rates, specially AWCMR has a significant and positive contemporaneous effect on yield rates on 364-day Treasury bills. This highlights the immediate transmission of changes in AWCMR to long-term government borrowing costs. The alternating signs of lagged effects ΔAWCMR and Δ2AWCMR, reflect an oscillatory adjustment in yield rates on Treasury bills in response to changes in AWCMR. A study by Perera (2016) found sluggish pass-through, noting quick adjustments in short-term market lending rates, but slower responses from other rates and accordingly short-run pass-through of 0.07 percentage points and 0.10 percentage points to 1 percentage point change in the 91-day Treasury bill rate.

Figure 2: AWCMR relationship with AWLR and 364 Treasury bill rates
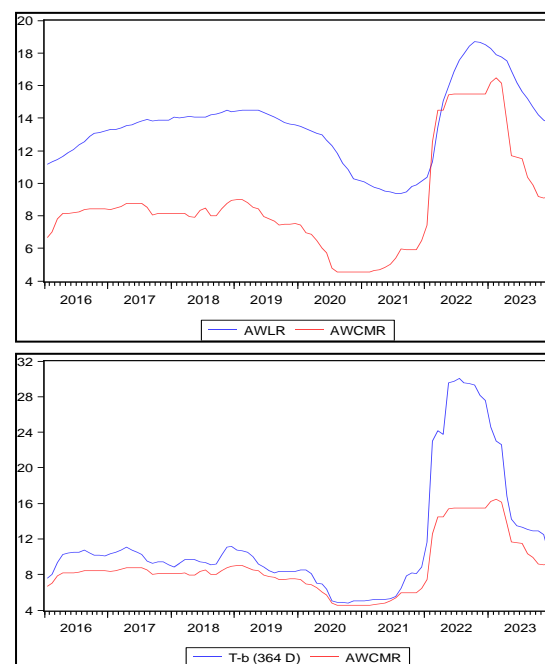
Source: Developed by author, 2025

In order to identify long-run impacts we first use the results of the bound test (Table 4). The ARDL bounds test results show the presence of a long-run relationship (cointegration) between AWCMR and AWFDR. Accordingly, the error correction mechanism also confirms the presence of a long-run relationship between AWCMR and AWFDR. A sustained change in AWCMR (e.g., due to monetary policy adjustments like policy rate changes) will gradually influence AWFDR over time, with the speed of adjustment governed by the ECT coefficient (-0.0866). Similarly, there are important insights into the relationship between ΔDAWDR and ΔAWCMR. The results confirm both short-run and long-run effects, with a moderate speed of adjustment toward equilibrium and significant lagged response AWLR and yield rates on 364-day Treasury bills do not exhibit a long-run equilibrium relationship as per the results of the bound test. This confirms through ECT that there is no evidence of a strong long-run relationship between these variables. The presence of a cointegrating relationship between the variables of AWCMR and AWPR was observed since the F-statistic exceeds the upper bound (I(1)) at all levels, rejecting the null hypothesis. In addition, yield rates on Treasury bill rates for 91-day and 182-day maturities also exhibit a long-run relationship with the AWCMR.

Table 4: Bounds test and error-correction results

	Bound test						
	AWFDR	DAWDR	AWLR	AWPR	91 T bill	182 T bill	364 T bill
F -Static	6.855	14.319	1.067	8.598	58.887	8.330	4.936
Prob. (1%)	*5.157*	5.157	5.157	5.917	5.157	5.157	5.917
	Error correction term						
Cof.	-0.087	-0.280	-0.027	-0.200	-2.073	-0.640	-0.174
Prob.	0.000	0.000	0.086	0.000	0.000	0.000	0.001

Source: Developed by author, 2025

The qualitative findings of this study focus on six key dimensions of monetary policy transmission as given in Table 5. However, initial coding is not present in this paper as it contains large details.

Table 5: Key themes under thematic analysis

	Tight monetary policy stance (2018.01.01-2019.05.30)	Relaxed monetary policy stance (2019.05.31-2021.08.18)	Tight monetary policy stance (2021.08.19-2023.05.31)	Relaxed monetary policy stance (2023.06.01-2023.12.31)
1	Market Interest Rates	Market Interest Rates	Global and Domestic Economic Conditions	Market Interest Rates
2	Inflation Control	Inflation Control	Monetary Policy Stance and Policy Rate Corridor	Inflation Control
3	Monetary Policy Stance	Expectations and Targets	Market Interest Rates	Monetary Policy Stance
4	Money and Credit Growth	Monetary Policy Stance and Policy Rate Corridor	Money, Credit Growth, and Private Sector Borrowing	Money and Credit Growth
5	Global and Domestic Economic Conditions	Money, Credit Growth, and Private Sector Borrowing	Inflation Control, Expectations, and Target	Global/Domestic Economic Conditions
6	-	Global and Domestic Economic Conditions	-	-

Source: Developed by author, 2025

Note *: Qualitative analysis carried out for the period starting from 01.01.2018 to 31.12.2023*

In 2018, CBSL managed its monetary policy carefully, responding to subdued inflation, modest economic growth, and external sector pressures. In April 2018, the CBSL ended its monetary tightening phase by reducing the Standing Lending Facility Rate (SLFR) by 25 basis points. Subsequently, it adopted a neutral stance for the remainder of the year due to weak domestic economic performance and persistent external pressures. By September 2018, the CBSL witnessed a substantial liquidity shortage and therefore, the Statutory Reserve Ratio (SRR) applicable for all rupee deposit liabilities of the LCBs was reduced by 1.50 per cent in November 2018, by injecting permanent liquidity into the domestic money market. To offset the liquidity supply while maintaining a neutral stance, the CBSL increased the Standing Deposit Facility Rate (SDFR) and SLFR by 75 basis points and by 50 basis points, respectively, narrowing the policy rate corridor to 100 basis points. If we consider a direct quote from the 2018 November monetary policy review, "The Board arrived at this decision following a careful analysis of current and expected developments in the domestic and global economy and the domestic financial market, with the broad aim of stabilising inflation at mid-single digit levels in the medium term…." (Monetary Policy Review – November 2018) clearly highlights future expectations on inflation. Such actions were yielded to reduce the liquidity pressures in the market, which kept market interest rates raised. As a result, the AWLR rose to 14.40 per cent in 2018 from 13.88 per cent in 2017. AWCMR generally stayed near the middle of the SRC but occasionally moved higher due to increased private sector credit and external sector pressures.

Meanwhile, to address weak economic activity and sluggish private-sector credit growth, the CBSL adopted an accommodative monetary policy stance from May 2019 to April 2020. This approach was supported by muted inflation, stable external conditions, and global monetary easing. As detailed in the monetary policy review, key measures included reducing policy interest rates by a cumulative 200 basis points, reducing the SRR on rupee deposits by 2 percentage points, and imposing interest rate caps to lower borrowing costs and stimulate credit flows. According to the monetary policy review, while lending rates gradually declined, further policy rate cuts and liquidity injections were introduced in early 2020, including emergency

measures in response to the COVID-19 outbreak, to stabilise the economy and financial markets.

In response to the challenges posed by the COVID-19 pandemic, the CBSL implemented unprecedented monetary easing in 2020 to support growth, recovery, and stability. With inflation remaining low and demand subdued, as highlighted in the monetary policy review, policy interest rates were cut five times by a total of 250 basis points. The SRR was reduced by 3 percentage points, and the Bank Rate was lowered by 650 basis points, as outlined in the monetary policy review. "The Board recognised the necessity to continue the accommodative monetary policy stance, particularly as market lending rates are yet to reflect the full pass-through of policy easing measures implemented thus far………… encouraging borrowing for productive economic activity and reinforcing support for COVID-19 hit businesses as well as the broader economy, given the conditions of subdued inflation" (Monetary Policy Review – August 2020), highlighted the necessity to continue its accommodative policy stance to help restore subdued inflation. CBSL also funded the government, enhanced market liquidity, launched concessional loan schemes for pandemic-affected businesses, and capped certain lending rates, including those for mortgage-backed housing loans. As per the review result, such actions resulted in historically low interest rates, a recovery in private-sector credit growth, and substantial growth in public sector credit, leading to a quick pick up in the money supply by the end of 2020.

Figure 3: Behaviour of year-on-year inflation (2015-2023)
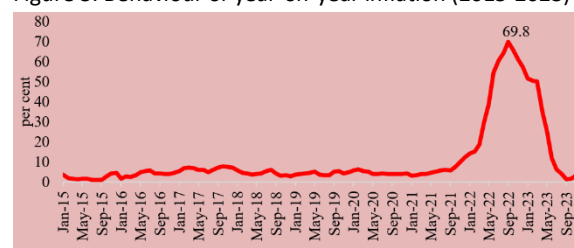

Source: Central Bank of Sri Lanka, 2015-2023

The CBSL overturned its relaxed monetary policy stance to address increasing inflationary pressures and external imbalances in 2021. The review said that while the monetary support from the COVID-19 pandemic continued early in the

year, leading to historically low interest rates and growth of private-sector credit and broad money supply, tightening actions were presented in August 2021. These measures comprised increases in policy interest rates and the SRR and these actions, along with foreign loan repayments and increased currency in circulation, lowered market liquidity and decreased market interest rates, including yield rates on government securities.

As per the monetary policy review of the CBSL, in 2022, the Central Bank significantly tightened its monetary policy stance to counter soaring inflation, anchor expectations, and address unprecedented external vulnerabilities, including severe balance of payments (BOP) stresses and concerns over domestic debt restructuring. As highlighted in the review, inflation surged due to supply disruptions, global commodity price hikes, currency depreciation, and the lagged effects of pandemic-era monetary accommodation. Tight policy measures, including elevated interest rates, constrained money and credit growth, with private-sector credit contracting sharply, as noted in the review. However, according to the monetary policy reviews, improvements in the BOP and supply conditions eased inflation pressures late in the year, with headline inflation peaking in September 2022 and declining thereafter. As per the reviews, government borrowing and high yields on government securities persisted but moderated with optimism surrounding the IMF's Extended Fund Facility (IMF-EFF). CBSL eased liquidity stresses and guided a gradual decline in market interest rates, as emphasised in the monetary policy review. In March 2023, as outlined in the review, policy rates were increased to meet IMF-EFF conditions, while declining inflation and clarity on domestic debt optimisation are expected to lower risk premia and foster private-sector credit recovery.

Figure 4: The CBSL policy measures & its impact on inflation
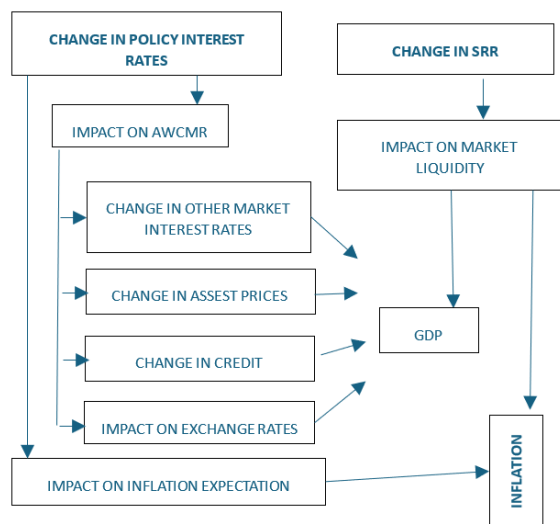
Source: Developed by author, 2025

The recent surge in inflation was effectively controlled through the tightening monetary policy measures implemented by the CBSL during the period under review (Figure 3). This suggests that the qualitative study findings validate the effectiveness of these monetary policy interventions in managing inflation outcomes. The analysis highlights that CBSL's policy adjustments, particularly in interest rates and liquidity management, played a crucial role in stabilising price levels thereby ensuring low and

stable inflation in the economy. Moreover, the qualitative evidence reinforces that these measures helped curb inflationary pressures, aligning with broader macroeconomic stabilisation objectives (Figure 4).

Through analysing various reports by the IMF, World Bank, and ADB it was evident that the stabilisation process in Sri Lanka clearly recognised. Accordingly, the IMF Country Report (June 2024) highlights significant changes in the monetary policy stance of Sri Lanka during the crisis period. In response to inflation, the policy interest rate was initially raised by 900 basis points. As inflation decreased, the CBSL reduced policy rates by 700 basis points between June 2023 and March 2024 and accordingly, inflation control measures of the CBSL caused a significant reduction in inflation.

Asian Development Outlook (April 2024) by the ADB, highlighted that "the CBSL's cut rates four times for a total of 650 basis points, but that was outpaced by the decline in inflation, which fell sharply from 53.2 per cent in January 2023 to 4.2 per cent in December". This reveals that policy actions and their impact on inflation were aligned. Similarly, as stated in the Sri Lanka Development update by the World Bank (October 2024), "inflation remained well below target, the CBSL continued to maintain an accommodative stance. Slowing inflation has allowed CBSL to cut policy rates by a cumulative 725 basis points (bps) since May 2023". Accordingly, the World Bank's view further confirms that CBSL's policy actions on bringing down inflation were in the right direction.

As highlighted in these reviews, overall, CBSL effectively controlled inflation and inflation expectations despite the challenging domestic and external conditions, with the measures it implemented having a positive impact on the economy and being successfully transmitted to the market. Finally, by integrating both quantitative and qualitative findings of this study, it was determined that the monetary policy transmission mechanism in Sri Lanka, operating through the AWCMR, exhibits both short-run and long-run effects on the economy. While adjustments in AWCMR influence the other market interest rates, inflation, and liquidity conditions in the short-term, the full impact on macroeconomic variables such as inflation, investment, and exchange rates unfold over a longer period. However, the effectiveness of this transmission process is subject to time lags, meaning that policy changes may not yield immediate results, and their impact may vary depending on market responses, external shocks, and structural conditions within the financial system.

CONCLUSION

There are a few limitations for this study as it does not capture financial market developments, regulatory changes, and banking sector reforms as this type of factor may alter how AWCMR influences the other market interest rates, credit, and inflation. Further, the impact of external shocks such as global financial crises and commodity price fluctuations can also distort the transmission mechanism, making it hard to isolate AWCMR's role. Meanwhile, the effectiveness of AWCMR in influencing inflation may be influenced by fiscal policies, such as government spending and taxation which could interfere with the monetary transmission mechanism, making it difficult to isolate the role of AWCMR.

However, this study provides critical insights into how changes in the AWCMR, a key monetary policy instrument, influence various interest rates in both the short and long run. In the short run, AWCMR exhibits significant delayed effects on deposit rates (AWDR and AWFDR), lending rates (AWLR), and Treasury bill rates. Notably, these effects are characterised by an initial adjustment followed by a correction mechanism, as evidenced by alternating positive and negative lagged coefficients. This oscillatory behaviour highlights the complex dynamics of monetary policy transmission, where the immediate impacts of AWCMR adjustments on the other market interest rates are moderated over subsequent periods. The findings also demonstrate that the response of yield rates on Treasury bills to changes in AWCMR is contemporaneous and significant, reflecting the direct and immediate influence of monetary policy on government borrowing costs.

In the long-run, our results confirm a cointegrating relationship between AWCMR and several key interest rates, including AWFDR, Treasury bill rates, and AWPR. The error correction mechanism (ECT) confirms the presence of long-term equilibrium adjustments for these variables, with the speed of adjustment varying depending on the rate. For instance, the AWFDR exhibits a gradual adjustment to long-term changes in AWCMR, with a moderate ECT coefficient suggesting the persistence of policy effects over time. However, AWLR and yield rates on 364-day Treasury bills do not show evidence of a strong long-run equilibrium relationship with AWCMR, implying that lending rates are more influenced by short-term dynamics than by sustained monetary policy adjustments.

As per the second objective, CBSL employed a dynamic and adaptive monetary policy framework between 2018 and 2023, effectively responding to evolving domestic and external shocks and challenges. The analysis of monetary policy reviews highlights how the CBSL used a range of tools, adjustments to policy interest rates, the SRR, and liquidity injections to address inflation, credit growth, and market liquidity. During periods of subdued economic activity, such as the pandemic, accommodative policies stimulated growth through reduced borrowing costs, while tightening measures were adopted to combat inflation and stabilise external imbalances during recovery periods. Overall, CBSL successfully managed inflationary pressures, liquidity conditions, and credit growth, highlighting the effectiveness of its transmission mechanisms in steering the economy through complex and volatile conditions. Accordingly, qualitative analysis strongly supports AWCMR-driven interest rate adjustments on inflationary outcomes in Sri Lanka. Since our findings include both quantitative and qualitative aspects of monetary policy transmission, this study provides a comprehensive analysis fulfilling the scarce literature on the qualitative aspect.

The findings of the study indicate that policymakers need to further strengthen the transmission mechanism of the AWCMR to other market interest rates in Sri Lanka. This is mainly due to the quantitative analysis of the selected interest rates of this study does not exhibit strong relationships with the AWCMR. Hence, it is required to improve the slow interest rate pass-through in monetary policy transmission mechanism, and the CBSL should

enhance their communication strategies which include providing clear and transparent forward guidance about future policy intentions, engaging directly with market participants, other stakeholders and the general public in an economy in order to improve transmission. For this purpose, various communication strategies can be introduced such as through social media to reach a wider audience. Further, regular reports on actions and measures taken by the CBSL and activation of digital platforms for real-time communication also yielded enhanced healthier understanding and faster response times. Similarly, promoting financial literacy among stakeholders is also important to ensure faster pass-through of policy rates and a more efficient monetary policy transmission mechanism.

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Effect of Ecological Environments on Students' Metacognition and English Learning Performance of Secondary School Students of Badulla Educational Zone in Sri Lanka

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Abstract

In literature, there is a dearth of studies exploring the influence of ecological factors on metacognition and English language learning performance, particularly in the context of secondary education in Sri Lanka. This study investigates how ecological factors influence metacognition and English language learning performance in secondary school students in Sri Lanka to fill these empirical and contextual knowledge gaps. The study used a quantitative method with a survey for collecting data, adhering to a positivist philosophy in a deductive approach. Primary data were collected from 290 secondary school students in the Badulla Educational Zone, Sri Lanka. A structured questionnaire was used to collect data and the data were analysed employing both descriptive statistics and the Partial Least Square Structural Equation Model (PLS-SEM). Key findings imply that ecological environments positively impact secondary students' English language learning performance and metacognition. The study further revealed that the metacognition of secondary school students has a significant influence on English language learning performance and the metacognition has a mediating effect on the relationship between ecological environments and the English language learning performance of secondary school students. Thus, the results imply that conducive ecological settings improve the English language learning performance of secondary school students. This further highlighted how crucial it is to promote metacognition and productive learning conditions to enhance the English language proficiency of secondary school students.

Keywords: Ecological Environments, English Learning Performance, Metacognition, Secondary School Students

INTRODUCTION

Sri Lanka is a multicultural country where Sinhalese is the main language, while English plays a pivotal role in every sphere (Fernando, 2018). Higher education, national and international job markets, and technological fields demand a higher rate of people who are fluent in English (Perera, 2020). Sneddon (2003) explained that as a global language, it is obvious that English plays an important role in international interaction which includes economic relationships among countries, international business relationships, global trading, and others. Rao (2019) stated that in the present day of globalisation, a large number of Chinese and Japanese people are studying English to increase their work opportunities. In brief, the global significance of English, as highlighted by scholars such as Sneddon (2003) and Rao (2019), it is a critical role in fostering international interaction, economic relationships, and cross-cultural communication, making it an integral part of multicultural nations.

Furthermore, after invasion of Sri Lanka by English-speaking colonizers hundreds of years ago, English became the language of an elite class. However, the situation is the same in the country, and many rural and middle-class students are afraid to learn English (Fernando, 2018; Perera, 2020). Wijesekara (2014) showed that language is a strong instrument, and the association of English with past colonial powers has had a widespread impact on the educational system in Sri Lanka, largely resulting in adverse socio-political conditions, as a result of misguided policies. Although Sri Lanka has a 91.1% literacy rate, with the majority of the population speaking Sinhala (81.8%), 15% of Sri Lankans are fluent in English (Sittarage, 2018). Notably, urban areas have greater competency in English, with approximately 32.9% of residents speaking the language and 34.1% reading and writing in English (Sittarage, 2018). Further, the historical influence of English as a language associated with colonial power dynamics in Sri Lanka

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continues to shape language perceptions, resulting in disparities in proficiency, particularly among the rural and middle classes (Sittarage, 2018).

It is essential to identify the factors contributing to the persistent failure rate in the G.C.E. (O/L) examination. The Presidential Task Force (1997) highlighted that, despite nearly ten years of learning English as a Second Language (ESL), most students were unable to use the language at an acceptable level (NEC, 1997; Wijesekara, 2014). According to the Department of Examination in 2022 G.C.E.(O/L) pass rate of English was 73.5% and the fail rate was 17.50 %. In particular, in rural areas, the failure rate is higher than that in urban areas. This proves that English learning in Sri Lanka cannot meet the expected level, and that the levels of learners' proficiency by the end of compulsory education are lower than those required by higher education and the labour market.

In particular, Sri Lankan schools have different socioeconomic backgrounds, which consist of a mix of urban, suburban, rural, and estate, and students who come from diverse levels of ecological backgrounds. In the Sri Lankan context, Liyanage (2021) states that students who are fluent in English typically have the opportunity to develop communicative language skills in dwellings where English is widely spoken. The ecological theory (Bronfenbrenner, 1979) emphasises that socioeconomic status plays a significant role in shaping individuals' lives. There are apparent differences in parental educational qualifications and the income of the parent for their children's education performances (Careemdeen, 2023). For instance, positive parental support for children's learning creates the best learning environment at home. Encouraging children to complete homework and engage in home-based learning activities directly contributes to fostering learning performance (Johnson & Lee, 2020). According to Bronfenbrenner's (1979) Ecological Theory, students are influenced by multiple layers of their socioeconomic environment; Microsystem, Mesosystem, Ecosystem, Macrosystem, and Chronosystem. In addition, as there is no evidence of how English language performance connects with each of these levels, this study expects to research this gap.

Some students were fluent in four English skills, while the majority could speak only the things they learned, and a few of them could speak well according to the situation. When considering students' cognition levels, they differ in engaging in activities, using strategies, and acquiring knowledge of the English language. The reason may vary for each student's cognition level (Lai, 2009). By taking samples from 1st-year University students of Botswana, Magogwe (2013) highlights that the reading proficiency of Botswanan English learners and their usage of metacognitive reading strategies have a relationship. For example, Zhong (2015) studied Chinese migrant learners' and found a relationship between migrant learners' beliefs and the strategies they used to learn. Further, he mentioned that they changed their beliefs and 'learning strategies' which is a part of the metacognition explained by Flavell (1979). Zhong's (2015) study presents the complex relationship between learner beliefs and strategies that may change over time when exposed to a new learning context and environment. Most studies show a positive correlation between metacognition

and English language learning, but most of them have taken their sample as adult or primary students (Flavell, 1979; Schraw & Dennison, 1994). Thus, there is a lack of knowledge regarding secondary school students' metacognition and English language learning performance.

Moreover, there is little research on the ecological backgrounds of children, their learning performances, and the correlation between metacognition and English learning performance (Brown & Smith, 2020; Johnson et al., 2019). However, few studies have addressed the effect of the ecological environment on the metacognition of school students, especially when developing performance in English. Astriani et al. (2020) state that, various kinds of research have revealed a positive relationship between metacognitive skills and learning performance. According to Raoofi et. al., (2013), metacognitive research and metacognitive strategy/knowledge are directly connected to second/foreign language acquisition success. Raoofi et al., (2013) indicated that metacognitive procedures have the potential to improve language performance; however, inconsistent evidence was identified regarding the intervention's effectiveness in improving metacognitive awareness/strategy usage. Existing empirical research has generally concentrated on the influence of individual characteristics (e.g., instructional tactics and teacher quality) on students' metacognition and language acquisition. This study explores the effect of the ecological environment on metacognition and English language-learning performance of secondary school students in Sri Lanka. This study tries to understand the processes behind this association and give practical recommendations for educational policymakers, school administrators, and instructors by drawing on empirical evidence, theoretical viewpoints, and rigorous techniques. It is intended that by gaining a better knowledge and appreciation for the influence of ecological contexts, educational interventions may be devised to establish optimum learning environments, thereby improving students' metacognition abilities and English language learning performance.

LITERATURE REVIEW

Theoretical Background

Ecological Systems Theory: Bronfenbrenner's Ecological System Theory (EST) developed by Bronfenbrenner (1979), focuses on an individual's relationship with their local and larger social contexts within their life span (Zaatari & Maalouf, 2022). The EST offers a framework for understanding how various environmental factors influence an individual's development. According to Bronfenbrenner (1979), the ecological environment is a series of layered structures, with each level enveloping the next. At the most fundamental level, the environment directly impacts an individual's development, whether it involves the family, classroom, or, in specific contexts, is utilized for research purposes. However, going further entails investigating the links between these different variables, which goes beyond the traditional notion. According to Bronfenbrenner, a child's competence in learning to read throughout the primary grades is dependent not only on teaching techniques but also on the quality and nature of the interactions between the school and the family. Bronfenbrenner's finding shows the correlation between the various ecological environments and human development which influences his positive or negative

development. In addition, many psychologists have proven that human development is a process that follows their backgrounds, attitudes, parenting, etc. The EST consists of five systems which are interrelated: the microsystem, mesosystem, exosystem, macrosystem, and chronosystem (Bronfenbrenner, 1979).

Within microsystems, the dimension of the interpersonal environment refers to the immediate social interactions and connections that have a direct influence on an individual. The person's immediate environment comprises a system of influence called the microsystem (Crawford, 2020). This setting comprises familial ties, friendships, interactions between teachers and students, and peer relationships. Crawford (2020) refers to those with daily, in-person contacts, such as family members, as vital microsystem components. The microsystem may extend outside the household to include others who have frequent and consistent interaction with the individual. Bronfenbrenner and Evans (2000) expanded this circle by adding new personalities as they strongly affected the child's ecological environment. Positive and negative interactions that they meet in their early phases affect a child's cognitive and verbal skills both directly and indirectly.

The mesosystem is comprised of the quality and traits of interactions between the family and the school (microsystem). Parent-teacher communication, parental engagement in school activities, and the amount to which home and school interact to foster metacognitive development are all elements in this dimension. According to Crawford (2020), the interactions between different microsystems that exist in an individual's life form the mesosystem. The mesosystem is the outcome of the interactions between multiple microsystems, for instance, the relationship between home and school. Within the ecosystem, the component of the cultural and societal environment includes the larger cultural, social, and institutional circumstances that affect people's lives. Cultural norms, extended family members, values, belief systems, legal and political frameworks, economic situations, and societal expectations are all part of this component (Bronfenbrenner, 1979; Neal & Neal, 2013). An exosystem refers to one or more settings that involve the developing person as an active participant, but in which events occur that are affected by what happens in the setting containing the developing person. It explores how cultural and socioeconomic elements impact people's experiences, possibilities, and limits in their ecological surroundings (Bronfenbrenner, 1979; Neal & Neal, 2013).

The macrosystem dimension includes the larger sociocultural milieu in which students find themselves. This setting comprises educational and metacognitive cultural norms, values, and beliefs. Crawford (2020) highlights Bronfenbrenner's position on family culture formation within the microsystem structure. This sophisticated process is controlled not just by the mesosystems and ecosystems of the individuals within the family, but also by all of these systems (Bronfenbrenner, 1979). Furthermore, the larger socioeconomic and cultural framework shapes these interrelated processes (Vygotsky, 1978). It also takes into account cultural attitudes toward cognitive growth as well as the function of metacognition in learning (Flavell, 1979).

Life Experiences (Chronosystem), which is frequently related to the chronosystem, refers to the dynamic and growing nature of people's experiences across time. Crawford (2020) emphasises that the developmental process includes not only people's natural ageing and maturity but also the historical epoch in which they live and grow. Bronfenbrenner (1979) highlights research on the effects of the Great Depression on children and adolescents as an example. The study demonstrates how people who were born during the Depression's start suffered distinct consequences than those born shortly thereafter (Elder, 1999). It takes into account the overall influence of life events, transitions, historical events, and personal milestones on an individual's growth. Significant life changes, such as relocating to a new area, enduring trauma, reaching educational milestones, or meeting cultural upheavals, are examples of life experiences (Clausen, 1995). This dimension investigates how these life events, which occur at various stages of a person's life, impact their growth and metacognitive processes (Elder, 1999).

Metacognition Theory: According to Flavell (1979), a person who believes that people manage their cognitive processes may have an 'internal locus of control'. According to Flavell's metacognition theory (1979), the importance of metacognitive awareness, control, and experience in improving successful learning and problem-solving is further emphasised. He highlighted the significance of metacognitive tactics in coping with varied scholastic habitats. People who had well-structured metacognition did not find it difficult to adjust themselves to different aspects of nature and have maximum benefit out of them for better learning purposes. Flavell (1979) described learners' awareness of their cognition and its process, which is investigated as 'knowledge and cognition about cognitive events'. This theoretical foundation not only justifies metacognition as a study variable but also drives the creation of treatments and methods targeted at improving students' metacognitive skills and academic achievement. Metacognition involves awareness of how they learn, an evaluation of their learning needs, generating strategies to meet these needs, and then implementing the strategies (Jaleel & Premachandran, 2016). In brief, metacognition entails understanding how one learns, analysing one's learning requirements, developing strategies to meet those needs, and putting those strategies into action.

Metacognitive knowledge entails the essential feature of metacognition in which individuals demonstrate knowledge of their cognitive processes and learning procedures. Keren (1991) shows that declarative knowledge in metacognition refers to understanding one's personality, skills, shortcomings, and learning style. According to Keren (1991), procedural knowledge in metacognition includes abilities, heuristics, and problem-solving techniques. It entails understanding how to apply specialised strategies to various tasks, effective cognitive process execution methods, and learning regulation mechanisms. Flavell (1979) argues that metacognitive knowledge plays a significant role in language-related cognitive activities such as communication, persuasion, comprehension, and writing, as well as language acquisition and self-instruction.

Sun et al.'s (2021) study highlighted the importance of metacognitive experiences like cognition and emotions in

education. These experiences shape metacognitive knowledge and motivate students to employ strategies. Sun et al. (2021) emphasised that metacognitive experiences are crucial for language learning, but research on their impact on second language writing remains limited. The metacognitive practice of reflecting on one's learning experiences and techniques is represented by this component. To manage learning, people use skills like planning, monitoring, checking, and judging progress. Winne and Azevedo's (2022) study showed that setting clear goals before studying English helps achieve success. Paying close attention during English lessons is part of monitoring learning. Students who assessed their understanding as they went along did better at learning the language. Regulating means adjusting study habits based on results, like spending more time on areas of struggle. These skills allow learners to take charge of acquiring new knowledge effectively.

English Language Performance: According to Flavell (1979), metacognition adds to spoken language comprehension by including processes such as monitoring comprehension, recognising when comprehension breaks down, and adopting measures to improve comprehension. Additionally, they show that readers employ metacognitive skills to assess their comprehension of written content. For instance, Self-questioning, summarising and altering reading tactics. In the writing process, metacognition is essential. It helps writers plan, organise, rewrite, and edit their writing. Flavell (1979) investigates metacognition's complex function in many cognitive processes and talents. Flavell investigates the impact of metacognition on oral communication, persuasion, comprehension (both oral and reading), writing, language acquisition, attention, memory, problem-solving, social cognition, and forms of self-control and self-instruction. Furthermore, he highlights the increasing links between metacognitive notions and related ideas in social learning theory, cognitive behaviour modification, personality development, and educational theories. This research will explore further the correlation between metacognition and English language learning proficiency. English Language Proficiency studies a person's total competency and capacity to understand, communicate, and engage successfully in English. It has four major characteristics that represent various elements of language use. In this research reading, writing and speaking are taken into consideration to find the co-relation of the research.

Reading ability entails the ability to read written materials in English. It includes abilities like word decoding, comprehending sentence patterns, recognising context, and extracting meaning from a range of written sources such as books, articles, and digital information (Snow, 2010). Reading competency includes the ability to comprehend an English text as well as the ability to decode words, grasp sentence patterns, recognise certain contexts, and extract meaning from a range of written sources such as books, articles, or websites (Gough & Tunmer, 1986). Writing competency involves effectively conveying thoughts, ideas, and facts in written English. It includes grammar, syntax, vocabulary selection, text organisation, and successful communication (Bereiter & Scardamalia, 1987). This research focuses on children's writing strategies and knowledge in three stages: planning, writing, and revising, aiming to measure metacognitive knowledge and English language proficiency (Graham & Harris, 1997).

Listening and speaking proficiency skills encompass the ability to clearly and intelligibly communicate simple concepts, ideas, and messages in spoken English, which is regarded as speaking proficiency (Brown, 2014). This skill assesses pronunciation, intonation, effective communication in a variety of social and professional settings, and the capacity to interact with others through verbal connections (Brown, 2014; Richards & Schmidt, 2010). Vocabulary knowledge has a major impact on language ability. It involves recognising, comprehending, and applying English vocabulary effectively. This skill greatly affects reading, academics, and communication across contexts. To enhance vocabulary acquisition, students benefit from applying varied self-learning word strategies. Research by McKeown et al. (2017) emphasises that vocabulary instruction should actively engage students in deep thinking about word meanings, word relationships, and the versatile usage of words in different scenarios.

Hypotheses

Ecological Environment and Metacognition: There are some positive effects of a good ecological environment which are well supported by students' background with their developing metacognition. Martin and Dowson (2009) found that teenage students who are anxious about their future tend to perform better in school. In addition, Stanton et al., (2021) state that metacognition is the awareness and control of one's own thinking for learning. Moreover, Flavell (1979) discovered that contextual elements, such as physical surroundings and social interactions, contribute to the development of metacognitive abilities. Teng et al. (2021) found that students' metacognitive approaches and cognitive writing skills are influenced by their environmental setting, which includes cultural and linguistic disparities. Therefore, the study assumes that;

H1: The ecological environment has a positive effect on the metacognition of secondary school students in Sri Lankan schools.

Ecological Environment and Learning Performance: The relationship between the ecological environment and learning performance is multidimensional, with empirical research indicating that numerous factors influence how people learn and perform academically. Fernández et al. (2020) discovered that students' ecological impact is linked to their relationship with nature and pro-environmental attitudes. This shows that a better connection to the natural world can promote a sustainable attitude, which may lead to learning behaviours that prioritise environmental considerations. Jitreanu et al., (2022) investigated environmental values and behaviour, concluding that a strong understanding of environmental values is closely linked to pro-ecological behaviour and life satisfaction. This suggests that an ecological environment that fosters awareness and values can improve learning outcomes by encouraging behaviours that increase well-being and satisfaction. Furthermore, Ramanathan (2016) describes an irregular relationship between environmental performance and financial performance, implying that the relationship between the ecological environment and learning performance may be non-linear and influenced by numerous factors. Munir et al., (2021) demonstrate that the learning environment, including ecological factors, has been found to influence student performance. A suitable ecological environment can create an environment that promotes learning, potentially leading to improved

academic achievements. Based on the available information, this analysis expects a significant association between the ecological environment and learning performance.

H2: There is a positive relationship between the ecological environment and the English language learning performance of secondary school students in Sri Lankan schools.

Metacognition and Learning Performance: Ohtani and Hisasaka's (2018) meta-analytic review indicated that metacognition is one of the most significant predictors of academic performance, even after controlling for intelligence. This study emphasises the significance of metacognitive knowledge and actions, such as goal setting, monitoring understanding, and method selection, which are essential for effective learning. Cheng and Chan (2021) emphasised the importance of metacognitive education in increasing students' academic results in a variety of domains, including problem-solving and reading comprehension. Their study emphasises the importance of metacognitive teaching practices for promoting self-regulated and independent learning. In addition, Goradia and Bugarcic (2017), found that metacognitive techniques greatly improved learning performance. These approaches require learners to actively assess and evaluate their comprehension and strategies, which leads to higher academic performance. The empirical research provides plenty of proof supporting the positive relationship between metacognition and academic success. Therefore, the study assumes that;

H3: Metacognition has a positive impact on the English language learning performance of secondary school students in Sri Lankan schools.

Mediating Role of Metacognition: Metacognition has a significant role in improving the learning performance of students. The environment in which children grow up, including their socioeconomic status, support from their families, and availability of educational materials, greatly influences their English learning. Thus, the impact is indirect, with metacognitive knowledge mediating the relationship between the ecological context and the academic performance of school children. By integrating metacognitive strategies into the English language course, including differential integration for students with varied levels of metacognitive skills and generating a reflective learning atmosphere, schools could enhance the effect of the ecological context on English language learning. Finally, reconciling and improving the power of the mediator of metacognition may lead to a meaningful prevalence of equity and pragmatic educational policies in Sri Lankan secondary schools.

H4: Metacognition has a mediating effect on the relationship between ecological environment and English language learning performance of secondary school students in Sri Lankan schools.

MATERIALS AND METHODS

This study follows a positivist philosophy with an ontological position of realism (objectivism) because it is founded on a coherent theoretical framework to explain the variables. The study used a deductive approach with an explanatory nature, intending to test hypotheses about the impact of ecological settings on metacognition and English learning performance. Therefore, a quantitative method was selected. A multi-stage sampling procedure was used to determine the sample from the secondary school students in Sri Lanka which was the unit of analysis. First, the Badulla district was chosen from 25 districts using a simple random sampling technique. Following that, one educational zone, i.e. the Badulla Educational Zone was selected randomly among the six education zones in the district. Thirdly, the sample size was decided based on the total number of secondary school students within the educational zone. According to Uva Provincial Education Office calculations (2022), there are 18637 secondary school students in grades 6 to 11 in 112 schools spread across urban, suburban, and rural areas. The sample size was approximately 390 students out of the total student population (calculated by Ravo.com calculator) for this research based on Krejcie and Morgen (1970) sample size determination formula. A representative sample of students represented different ecological environments (e.g., urban, suburban, rural) and were selected to ensure diverse perspectives and experiences. Finally, respondents were selected using a simple random sampling technique.

A structural questionnaire was administered to collect data from secondary-level school students and data were collected with face-to-face interviews with respondents. The study measured the microsystem using three attributes including familial ties, communication, and support systems, which directly impact their emotional well-being and academic achievement adopted by Fiese et al. (2002), and Hawkins and Dollahite (1997). The mesosystem has been measured using a network of interpersonal contexts, emphasising family communication, parental involvement, and peer interactions based on Fredricks, Blumenfeld, and Paris (2004); Pianta and Hamre (2009); Wentzel and Peers (2009). The Exosystem was assessed using external social systems like workplace policies, community resources, and media, which indirectly influence a student's growth (Bronfenbrenner, 1979; Van Der Molen, & Van der Linden, 2018). The macrosystem was assessed with the help of the four dimensions adopted by Blumenfeld and Paris (2004); Renshaw & Brown (2019); and Matthews & Lopez (2020). The chronosystem was measured employing life experiences and historical contexts and focuses on how technological advancements, economic changes, sociohistorical transitions, personal experiences, and environmental changes affect a child's long-term growth and behaviour (Bronfenbrenner, 1979; Elder, 1998; Schmitt, & Pomerantz, 2013).

Metacognition is measured using three dimensions including metacognitive knowledge, experience, and skills. Each dimension was measured using different attributes adopted by Flavell, (1979); Schraw (2001); Veenman, et al. (2006). English language performance was measured with the support of six attributes including reading, writing, speaking, listening, vocabulary Knowledge, and grammar proficiency adopted by Bachman & Palmer (2010); and Brown (2004). Each dimension of the questionnaire was measured by different question items. Each question was assigned a 7-point Likert scale.

Basic descriptive statistical analyses were used to understand the behaviour of each variable. In addition, a Partial Least Squares Structural Equation Model (PLS-SEM) was used as the main analysis technique to test the hypothetical relationships. First-order analysis was used to

evaluate the validity and reliability of the questionnaire items and constructs. Internal consistency reliability, indicator reliability, convergent validity, and discriminant validity were employed to assess the reliability and validity of measurements. The structural model was assessed based on first-order and second-order results. The structural model evaluated the multicollinearity, significance of path coefficients, coefficients of determination, R squire, effect size, and predictive relevance.

RESULTS AND DISCUSSION

The variables regarding the ecological environment, metacognition, and performance in English language learning performance were checked with a focus on their reliability and validity using various measures. PLS-SEM analysis initially examines the reliability of two major indicators; indicator reliability which requires outer loadings to surpass 0.7, and T-statistics, which should be more than 1.96 to indicate significance at a 95% confidence level. Internal consistency was also evaluated using Cronbach's Alpha (CA) and Composite Reliability (CR), both of which should be more than 0.7. The Average Variance Extracted (AVE) was used to establish convergent validity, with an acceptable threshold of larger than 0.5 for each latent variable. Finally, discriminate validity was measured with the square root of AVE larger than correlations with other components. All first-order constructs were greater than the agreed-upon criterion value of 0.7, thus demonstrating strong indication reliability (See Table 1). In addition, all the T-statistics of indicators were far above 1.96, hence indicator reliability was statistically significant. Table 1 further shows that CR and CA were above the criterion of 0.7, hence it indicates a high internal consistency reliability.

Table 1: Evaluation of first-order construct

	Construct and Item Description	Factor Loading	T-stat	CR	CA	AVE
1 Ecological Environment						
1.1 Microsystem				0.892	0.875	0.671
1.1a	Family members often engage in open conversations with me.	0.908	53.026			
1.1e	We have healthy communication strategies when we resolve conflicts.	0.720	18.370			
1.1f	We practice special traditions and rituals within the family.	0.763	18.649			
1.1g	Our family is bonded and strengthened by special traditions and rituals.	0.888	31.579			
1.1h	We see ourselves as a tightly connected group.	0.802	20.294			
1.2 Mesosystem				0.963	0.959	0.714
1.2a	At home, I feel my family is warmly supported.	0.821	21.321			
1.2b	My parents attend school meetings or events frequently.	0.924	57.694			
1.2c	My parents are actively engaged in my education.	0.872	26.351			
1.2d	I connect well with my teachers.	0.822	22.165			
1.2e	I feel comfortable seeking help or guidance from them.	0.929	79.444			
1.2f	I interact with classmates during school hours by.	0.882	36.971			
1.2g	I know my neighbors well engage friendly conversations with them.	0.738	14.104			
1.2h	I participate in academic and social activities with my peers.	0.843	29.142			
1.2j	These connections are important for my overall well-being.	0.882	43.141			
1.2k	My parents communicate with my teachers about my progress.	0.727	16.828			
1.2l	I collaborate with peers on group projects or assignments frequently.	0.829	26.783			
1.3 Ecosystem				0.861	0.861	0.706
1.3d	Available healthcare services keep me healthy.	0.830	29.953			
1.3e	After-school programs help me learn.	0.847	32.307			
1.3l	Pollution can hurt my breathing, so I care about the environment.	0.852	30.382			
1.3m	Green areas are cool because they let me play outside and stay fit.	0.832	24.469			
1.4 Macrosystem				0.677	0.743	0.734
1.4c	My ethnicity impacts how I feel about fitting in at school.	0.813	29.284			
1.4d	Where I live makes it easier or harder for me to get a good education.	0.898	94.164			
1.5 Chronosystem				0.817	0.809	0.567
1.5a	New gadgets changed how I do things in the last ten years.	0.711	20.357			
1.5b	Money problems such as historical events or economic recessions affected my family recently.	0.817	39.851			
1.5d	New school rules changed how I felt in class.	0.747	23.051			
1.5e	What I want to be when I grow up changed as I got older.	0.722	18.102			
1.5g	The friends I spend time with have a big effect on how I live my life.	0.762	24.487			
2: Metacognition						
2.1 Metacognitive Knowledge				0.916	0.912	0.763
2.1b	I can identify different learning strategies I use for studying English.	0.805	22.558			
2.1c	I am confident in applying different learning strategies effectively in my English studies.	0.918	67.038			

Item	Statement	Loading	t-value			
2.1d	I have used specific study techniques successfully to improve my English learning.	0.937	77.318			
2.1e	I can identify when to use specific study techniques or problem-solving strategies.	0.896	57.610			
2.2 Metacognitive experience				**0.890**	**0.879**	**0.805**
2.2a	I can identify when I am struggling with understanding English language concepts or tasks.	0.865	42.493			
2.2b	I frequently check my understanding of the material during English language learning tasks.	0.916	83.496			
2.2c	I can identify areas for improvement in my English language skills through reflection.	0.910	57.002			
2.3 Metacognitive skill				**0.901**	**0.897**	**0.710**
2.3a	I set specific learning goals before studying English.	0.767	24.758			
2.3b	I check if I am paying attention during English language learning activities.	0.873	48.991			
2.3c	I change my learning strategies when I encounter difficulties in understanding English concepts.	0.785	26.689			
2.3d	I often allocate time for learning English.	0.897	61.648			
2.3e	I use feedback from teachers or peers to improve my English language skills.	0.883	54.045			
3 English Language Learning Performance						
3.1 Speaking Skills				**0.785**	**0.780**	**0.697**
3.1a	My pronunciation in English is clear and accurate	0.778	24.839			
3.1b	I speak English fluently without hesitation.	0.906	107.495			
3.1c	I use a wide range of vocabulary in my spoken English.	0.815	28.837			
3.2 Listening Skills				0.841	0.835	0.752
3.2a	I can easily grasp the main ideas in spoken English.	0.935	63.618			
3.2b	I am successful in picking up specific details in spoken English.	0.934	70.670			
3.3c	I can understand nuances and implied meanings in spoken English.	0.900	32.741			
3.3 Reading skills				0.916	0.913	0.852
3.3a	I understand the main ideas in written English texts.	0.935	87.265			
3.3b	I am good at recognizing specific details in written English texts.	0.934	93.724			
3.3c	I can interpret different types of written English texts.	0.900	55.380			
Writing Skills				0.854	0.852	0.772
3.4a	I can organize and present ideas coherently in written English.	0.884	55.491			
3.4b	My use of grammar in written English is accurate.	0.910	75.404			
3.4c	I have a diverse vocabulary usage in written English.	0.840	36.791			
Vocabulary Knowledge				0.773	0.770	0.751
3.5a	I can recognize and understand a wide range of vocabulary words in English.	0.855	42.084			
3.5b	I can use a wide range of vocabulary words in my English communication.	0.878	79.867			
Grammar Proficiency				0.882	0.877	0.891
3.6a	I am confident in my knowledge of English grammar rules	0.949	46.421			
3.6b	I accurately apply English grammar rules in my communication.	0.938	29.396			

Source: Survey, 2024

According to Table 2, the AVE of all constructs is above 0.7 confirming the discriminate validity according to the Fornell-Larcker criterion. This is because, for each construct, the square root of the AVE is larger than the correlations of other constructs.

Table 2: Discriminant validity

Constructs	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	3.1	3.2	3.3	3.4	3.5	3.6
1.1 Microsystems	**.819**													
1.2 Mesosystem	.810	**.845**												
1.3 Ecosystem	.841	.835	**.842**											
1.4 Macrosystem	.645	.666	.667	**.857**										
1.5 Chronosystem	.747	.719	.730	.720	**.753**									
2.1 Metacognitive Knowledge	.566	.590	.516	.630	.555	**.891**								
2.2 Metacognitive experience	.439	.466	.389	.497	.416	.833	**.897**							
2.3 Metacognitive Skills	.697	.683	.662	.658	.690	.761	.718	**.843**						
3.1 Speaking skills	.338	.378	.322	.336	.308	.594	.616	.579	**.835**					
3.2 Listening Skills	.524	.556	.510	.556	.478	.632	.569	.601	.684	**.867**				
3.3 Reading Skills	.555	.578	.542	.566	.573	.630	.516	.670	.552	.759	**.923**			
3.4 Writing Skills	.332	.390	.281	.317	.329	.480	.499	.510	.606	.547	.621	**.879**		
3.5 Vocabulary Knowledge	.540	.607	.456	.377	.491	.538	.569	.566	.662	.630	.552	.734	**.867**	
3.6 Grammar Proficiency	.212	.297	.140	.197	.166	.467	.480	.336	.615	.541	.404	.677	.723	**.944**

Source: Survey, 2024

Based on the latent variable scores of the first-order constructs, 14 constructs at the second-order level were formed (See Table 3). The study has developed 5 constructs under the ecological environments, 3 constructs under the metacognition, and 6 constructs under the English language learning performance. For all the second-order constructs presented in Table 3, standardised factor loadings were greater than 0.7 and factor loadings were significant at 0.05 significance level showing the indicator reliability of the second-order constructs revealing that all constructs have a greater extent of indicator reliability. Furthermore, Table 2 indicates that the CA was higher than the required value of 0.7 and CR was higher than the recommended 0.7 value for all the constructs. The results confirmed the convergent validity of the second-order constructs. Table 3 demonstrates that AVE for each construct was higher than the required value of 0.5 indicating convergent validity.

Table 3: Analysis of the second-order constructs

Construct and Item	Factor Loading	T-Statistic	CR	CA	AVE
1. Ecological Environments			0.945	0.944	0.818
1.1 Microsystems	0.920	68.225			
1.2 Mesosystem	0.944	100.326			
1.3 Ecosystem	0.921	51.612			
1.4 Macrosystem	0.828	34.968			
1.5 Chronosystem	0.905	58.001			
2. Metacognition			0.918	0.91	0.847
2.1 Metacognitive Knowledge	0.938	103.319			
2.2 Metacognitive Experience	0.914	71.006			
2.3 Metacognitive Skills	0.908	71.039			
3. English Language Learning Performance			0.916	0.908	0.683
3.1 Speaking Skills	0.833	40.177			
3.2 Listening Skills	0.857	57.047			
3.3 Reading Skills	0.807	32.981			

3.4 Writing Skills	0.83	40.262
3.5 Vocabulary Knowledge	0.859	37.965
3.6 Grammar Proficiency	0.767	29.396

Source: Survey, 2024

The results further indicate that the square root of AVE was greater than all the correlations of the constructs as demonstrated in Table 4. The results confirmed the discriminant validity of all the second-order constructs.

Table 4: Discriminate validity of second-order constructs

Construct	Ecological Environments	English Learning Performance	Metacognition
Ecological Environments	0.905		
English Learning Performance	0.569	0.826	
Metacognition	0.689	0.731	0.920

Source: Survey, 2024

The Variance Inflation Factor (VIF) is used to measure multicollinearity in the structural model. The structural model has no issues with multicollinearity since all VIF values are less than 5 (VIF value on the relationship between ecological environments and English language learning performance was 1.902, between ecological environments and metacognition was 1.00, and between metacognition and English language learning performance was 2.729). This indicates that the structural model is free of the multicollinearity issue.

Table 5 revealed that the path coefficients in the structural model show a positive and direct association between ecological environments and English language learning performance confirming hypothesis 1 (H1). The association between ecological environments and metacognition (H2) is highly significant and positive, implying that favourable environmental conditions significantly improve

metacognitive abilities. Furthermore, the association between metacognition and English language learning performance (H3) has a strong and positive significant relationship, emphasising the importance of metacognition in improving language learning outcomes. Furthermore, the mediation analysis reveals that the indirect influence of ecological environments on English language learning performance via metacognition is largely mediated (H4).

Table 5: Path coefficients and hypotheses

Hypothesis and Path	Coefficient	T-Statistic	P-Value	Decision
H1: Ecological Environments → English Language Learning Performance	0.126	2.296	0.022	Accepted
H2: Ecological Environments → Metacognition	0.689	20.231	0.000	Accepted
H3: Metacognition → English Language Learning Performance	0.644	11.814	0.000	Accepted
H4: (Mediating Effect): Ecological Environments → Metacognition → English Language Learning Performance	0.444	9.741	0.000	Partial Mediating

Source: Survey, 2024

Figure 1 shows that the model's independent variables, ecological environments and metacognition, explain 54.1% of the variance in English language learning performance (R^2 = 0.54). The R^2 score of 0.541 indicates that the model sufficiently predicts English language learning performance based on the factors. Ecological environments explain 47.4% of the variance in metacognition. This score indicates that the model has a moderate capacity to predict metacognitive abilities based on ecological context.

Figure 1: The results of the structural model
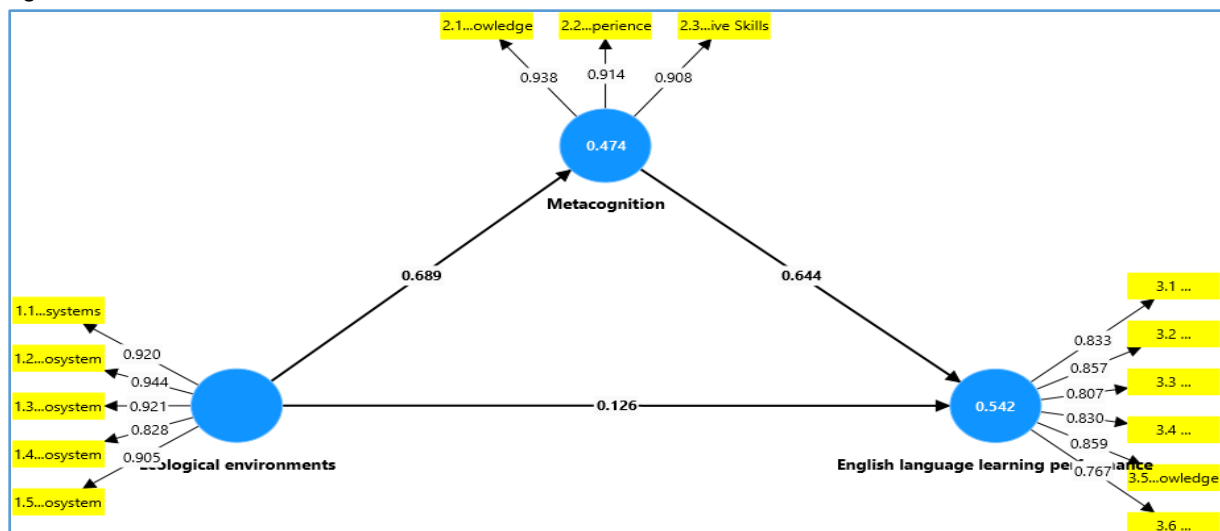
Source: SmartPLS output, 2024

Strong empirical evidence is provided by the PLS-SEM analysis for the first hypothesis (H1), which holds that secondary school students' metacognition is positively impacted by the ecological environment. The significant path coefficient (β = 0.689, p < 0.001) suggests that there is a close relationship between these two factors. This relationship is supported by previous studies (Bronfenbrenner, 1979) that have emphasised the influence of the learning environment on altering students' cognitive processes. The family, school, and community make up the ecological environment, which provides a framework for secondary school students' metacognitive growth. The discovery aligns with the ecological systems theory of Bronfenbrenner (1979), which posits that distinct environmental layers impact an individual's development.

The findings support the second hypothesis (H2), with a statistically significant path coefficient (β = 0.126, p = 0.022), demonstrating a positive association between the ecological environment and English language learning performance. This result is in line with other studies on the significance of environmental elements in language learning, which have shown that favourable and encouraging environments enhance language learning results (Cummins, 2000; Lightbown & Spada, 2013). The natural world affects language learning because it offers opportunities to interact with English-speaking people, form a family that is encouraging, and engage in school-related activities, all of which enhance language proficiency. While the environment promotes competence through contacts, family, and school activities, the effect is moderate, implying that other factors such as instruction quality may play a larger role in language learning results. The study significantly supports the third hypothesis (H3), as metacognition has a considerable impact on English language learning performance (β = 0.644, p < 0.001). This is in line with previous research, which has identified metacognitive methods as crucial for language learners' ability to successfully organise, monitor, and assess their learning processes (Wenden, 1998). The findings show that students who have more awareness of their cognitive processes and actively engage in metacognitive methods are better prepared to learn English. This could entail self-monitoring comprehension, establishing explicit language learning goals, and altering techniques in response to feedback.

The mediation analysis supports the fourth hypothesis (H4), which states that metacognition partially mediates the association between the ecological environment and English language learning performance. The path coefficient for the indirect effect (β = 0.444, p < 0.001) indicates that the ecological environment has a direct impact on language learning, but a large percentage of its influence occurs through metacognition. This partial mediation shows that the ecological environment improves language learning outcomes by first strengthening students' metacognitive skills, which then lead to greater English performance. This study supports the notion that metacognition serves as a vital intermediary, translating environmental support into effective learning methods (Veenman et al., 2006). The findings focused on the significance of educational interventions that emphasise not only enhancing the learning environment but also increasing students' metacognitive abilities to maximise their language learning potential.

CONCLUSION

The study attempts to explore the effect of the ecological environment on students' metacognition and performance in English-learning of secondary school students in Sri Lanka. The study found that ecological environments have a positive impact on English language learning performance and metacognition of secondary students. The study further revealed that the metacognition of secondary school students has a significant influence on English language learning performance and that metacognition has a mediating effect on the relationship between ecological environments and the English language learning performance of secondary school students. Thus, the results indicate that conducive ecological settings improve the English language learning performance of secondary school students.

The research findings provide several important contributions to the body of existing knowledge in educational psychology and pedagogy, particularly in the setting of Sri Lankan secondary school students. The study contributes by filling a gap in prior studies that lacked such thorough quantitative examination. The study's contextual value rests in its focus on the particular educational environment of Sri Lanka, providing empirical results relevant to this context and guiding local educational initiatives and policies. The study makes an important theoretical contribution by pioneering the development of a conceptual framework mixing ecological factors, metacognition, and English language learning performance to explain how these variables interact. The new framework developed can be used as a base for other subsequent studies and provide a clear guideline for studying the interaction of ecological environments, cognitive development, and academic performance in other educational settings.

This study suggests several policy recommendations aimed at improving English language learning and metacognitive skills in diverse ecological contexts. It highlights the importance of contextualised learning by incorporating local cultural, social, and environmental elements into educational materials. Ecologically responsive pedagogy can be supported through sensitisation workshops and training, with a focus on environmental variables influencing student learning. Additionally, professional development programs should emphasise metacognitive skill-building, helping faculty foster self-regulation, planning, monitoring, and evaluation of learning strategies. To address socioeconomic inequalities, resources should be distributed equitably, particularly in underprivileged areas, and access to educational technology should be expanded to improve learning opportunities. Inclusive policies that consider students' socio-economic and cultural backgrounds, such as scholarships and nutritional programs, are also recommended. Language exposure programs, promoting real-world English use through community initiatives and local business collaborations, should be developed. Environmental education can be incorporated into the English curriculum, encouraging sustainability practices like recycling and energy-saving measures. Family engagement programs, involving parents in the educational process, and

community collaborations with local centres offering English classes or real-world practice opportunities can further support student learning. Finally, the implementation of data-driven policies and feedback mechanisms will allow for regular assessments of environmental impacts on student performance, enabling timely adjustments to improve educational outcomes in Sri Lanka. This comprehensive approach aims to enhance both metacognitive skills and English language proficiency in diverse ecological settings.

Despite efforts to utilise a representative sampling approach, not all natural conditions and demographic groupings may be fully captured. Certain subpopulations or remote areas might be underrepresented, limiting the generalizability of the findings to all secondary pupils in Sri Lanka. Furthermore, while quantitative methods are effective for identifying broad trends, they may fail to capture the depth and diversity of individual experiences, restricting the study's ability to comprehend the nuanced effects of environmental factors on metacognition and English language proficiency. The study's potential reliance on cross-sectional data imposes temporal limits, as it may not fully capture longitudinal changes or demonstrate causal links. Furthermore, the intricacy and interconnection of the variables studied; ecological environment, metacognition, and English language performance make it difficult to separate individual consequences, and unaccounted-for confounding factors may influence the findings. Finally, using self-reported data raises the possibility of biases such as social desirability or recollection bias, which could alter the accuracy of the findings.

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Climate Change Vulnerability and Its Impact on A Small and Medium-Scale Agricultural Community in Rural Sri Lanka; with Special Reference to Galle District

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Abstract

Climate change is a global concern caused by human activities, impacting ecosystems and socio-economic ecology and systems in small cities and rural communities. In particular, communities that rely on the environment and natural resources for livelihood have become more vulnerable to the impact of climate change. In rural Sri Lanka, climate change poses challenges for the agricultural community in various manner. This study explores the vulnerability and impact of climate change on small and medium-scale rural agricultural communities in the Galle District of Sri Lanka. The study involved interviews with key informants and semi-structured interviews with impacted villagers, revealing findings such as; a decline in livelihood productivity, food insecurity, livelihood changes, migration and labour shortages, changes in employment patterns in the agriculture sector to other informal patterns, increased cost of adaptation to climate change incidents, threat to traditional knowledge, and loss of agricultural-friendly biodiversity. Addressing these impacts requires a holistic approach that integrates social and technological aspects, emphasising the importance of collaboration and local knowledge in enhancing resilience in the agricultural sector.

Keywords: Agriculture, Climate Change, Rural Community, Social Impact, Vulnerability

INTRODUCTION

Climate change refers to long-term shifts in temperatures and weather patterns, which can be natural or human-induced. Climate scientists have demonstrated that human activities, such as the emission of greenhouse gases, are primarily responsible for the significant global warming observed over the past two centuries. This rapid warming poses a threat to various aspects of our lives, including health, food security, housing, safety, and employment. Vulnerable populations, such as those residing in small island nations and developing countries, are particularly at risk from the impacts of climate change. From a Sociological perspective, investigating the social impact of climate change in largely overlooked rural communities would provide certain implications for social policy interventions in the country regarding climate change. Therefore, in this study, the researchers aimed to explore climate change vulnerability and its social impact on small and medium-scale rural agricultural communities, particularly in rural areas of the Galle District of Sri Lanka.

LITERATURE REVIEW

Climate change is the result of long-term shifts in temperatures and weather patterns, primarily caused by human activities, especially the burning of fossil fuels (Berrang-Ford et al., 2010). Burning fossil fuels releases greenhouse gases that trap heat in the atmosphere, leading to a rise in the global temperature. This has various negative impacts on Earth, including changes in temperature, precipitation patterns, and other climate variables. Since the late 1800s, the Earth's surface temperature has increased by approximately 1.2 degrees Celsius, making recent decades the warmest on record (Dietz et al., 2020).

Climate change is a major global concern due to rising temperatures, changing precipitation patterns, sea level rise, and natural hazards. Locally, the effects of climate change vary by region, with communities experiencing these impacts to varying degrees (United Nations. n.d.). Ecosystems, human health, food and water security, economies, and communities are highly vulnerable to the

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climate change emergency, making it one of the most critical environmental issues (ibid). The impact of climate change on human systems is influenced not only by the amounts of emissions but also by the vulnerability of these systems to changing climate conditions. Agriculture, water resources, and human health in the region have faced challenges and negative consequences due to these changes (UNEP, 2003). These issues bring uncertainty to the future world. Evaluating the effects of climate change is challenging due to considerable uncertainty regarding future societal and economic development (Hallegatte et al., 2011).

Climate change significantly impacts small and medium-scale agricultural communities, particularly smallholder farmers, who face heightened vulnerabilities due to environmental shifts. Empirical studies reveal that these vulnerabilities vary across different agroecological zones, necessitating tailored adaptation strategies to mitigate adverse effects. Berhanu et al. (2024) highlight smallholder farmers' vulnerabilities to climate change across three agroecologies in Ethiopia, revealing highland areas as the most sensitive and lowland households as the most vulnerable, emphasising the need for sustainable land-use practices and climate-smart agriculture interventions. A study focused on assessing agricultural vulnerability to climate change in Odisha, emphasising exposure, sensitivity, and adaptive capacity proposes tailored adaptation strategies for districts, highlighting the need for localised approaches to mitigate climate change impacts on agriculture (Sahoo & Moharaj, 2024). A study by Abelieneh et al. (2023), assesses smallholder farmers' vulnerability to climate change in Ethiopia, revealing significant agricultural losses and hardships. It highlights the susceptibility of different agroecological zones, with lowland households being the most vulnerable, emphasising the need for sustainable land use practices. Further, smallholder farmers in Nandom District, Ghana are vulnerable to climate change impacts across communities, influenced by agroecosystem services and climate information, which are crucial for effective adaptation practices in agricultural livelihoods (Lente et al., 2024).

Climate change has diverse impacts in the Global South, affecting ecosystems and socio-economic systems in small cities and rural communities (Mirza, 2010). Examples include melting glaciers in the Himalayas, rising sea levels impacting the social ecology of coastal areas and communities, and altered monsoon patterns leading to floods and droughts creating severe negative impacts (Cai et al., 2015). Agriculture is particularly vulnerable to climate change due to its reliance on natural resources like land and water, which are highly impacted by climatic conditions (Gowda et al., 2018). Changes in temperature, precipitation, and frost timing can affect the growing season and crop cultivation. While some regions may benefit from extended growing seasons or new crop opportunities, others may face challenges in agricultural practices.

Historical climate data for Sri Lanka show more pronounced warming trends compared to other regions in South Asia (Sheikh et al., 2015). As a result, Sri Lanka is experiencing a rise in the frequency of extreme weather events, including major floods and droughts (Perera, 2015), which have significant implications for food production and rural agricultural livelihoods. The agriculture sector remains a key contributor to Sri Lanka's economy, accounting for 8.57% of the GDP (Central Bank of Sri Lanka, 2023). Approximately 41% of the economically active population is involved in primary agricultural production (FAOSTAT, 2014). Sri Lanka meets about 80% of its annual food requirements domestically (DCS, 2014), with 80% of this food being produced by smallholder farmers who typically cultivate an average landholding size of 0.87 hectares (World Food Programme CDN, n.d.).

Sri Lanka is projected to suffer an economic loss of 1.2% of its GDP by 2050 as a result of climate change (Ahmed and Suphachalasai, 2014). There is a strong consensus that agricultural productivity in the country will decline due to climate change, which will have a negative impact on people who rely on agriculture as their primary livelihood. This may create social economic determinants and drawbacks for the agricultural community living in rural Sri Lanka.

MATERIALS AND METHODS

The research conducted a qualitative study in five selected Grama Niladhari (GN) divisions in the Nagoda Divisional Secretariat office in the Galle District, Sri Lanka, (Figure 01) which experienced the highest instances of floods, unexpected weather events, and droughts from 2020 to 2023. The selected GN Divisions were, Nagoda, Gammaddegoda North, Gammaddegoda South, Kurupanawa and Gonalagoda. Figure 01 shows the location of the study area. The Galle District has an estimated population of 1,139,000, with 87.8% considered rural dwellers engaged in agriculture (Department of Census and Statistics, 2014), making them highly vulnerable to the impacts of climate change. A total of 10 key informant interviews were conducted with officials responsible for agricultural activities, climate change, and disaster management in selected GN divisions and Divisional secretariat areas. Additionally, 30 semi-structured interviews were carried out with individuals affected by climate change-related incidents. The demographic profiles of the respondents are presented in Table 1, with a mix of male (n = 22) and female (n = 8) participants from diverse socio-demographic backgrounds. Initially, key informant interviews were conducted with 8 government officials, including the Village Officer (Grama Niladhari), Economic Development Officer, Disaster Management Officer, Social Service Officer, Agricultural Officer, and Samurdhi Development Officer, as well as two community leaders in the agricultural sector, a doctor from the MOH, and a Physical Health Inspector (PHI) in the area. These interviews aimed to gather insights into the impact of climate change and the vulnerable conditions of the rural community. Subsequently, 30 community members were selected using purposive sampling criteria, based on their experience of being impacted by climate change events and incidents and owning at least 1 acre of agricultural land or 1 acre of tea plantation land affected by climate change between 2022 and 2023. The climate change impact reports of the GN divisions were utilised to identify potential respondents within a specific GN division. Table 3 presents the themes resulting from the analysis, along with their thematic descriptors. In the narratives provided, "KI" refers to key informant interviews, and "SI" refers to semi-structured interviews with community members.

Figure 1: Location map of the Nagoda Divisional Secretariat area
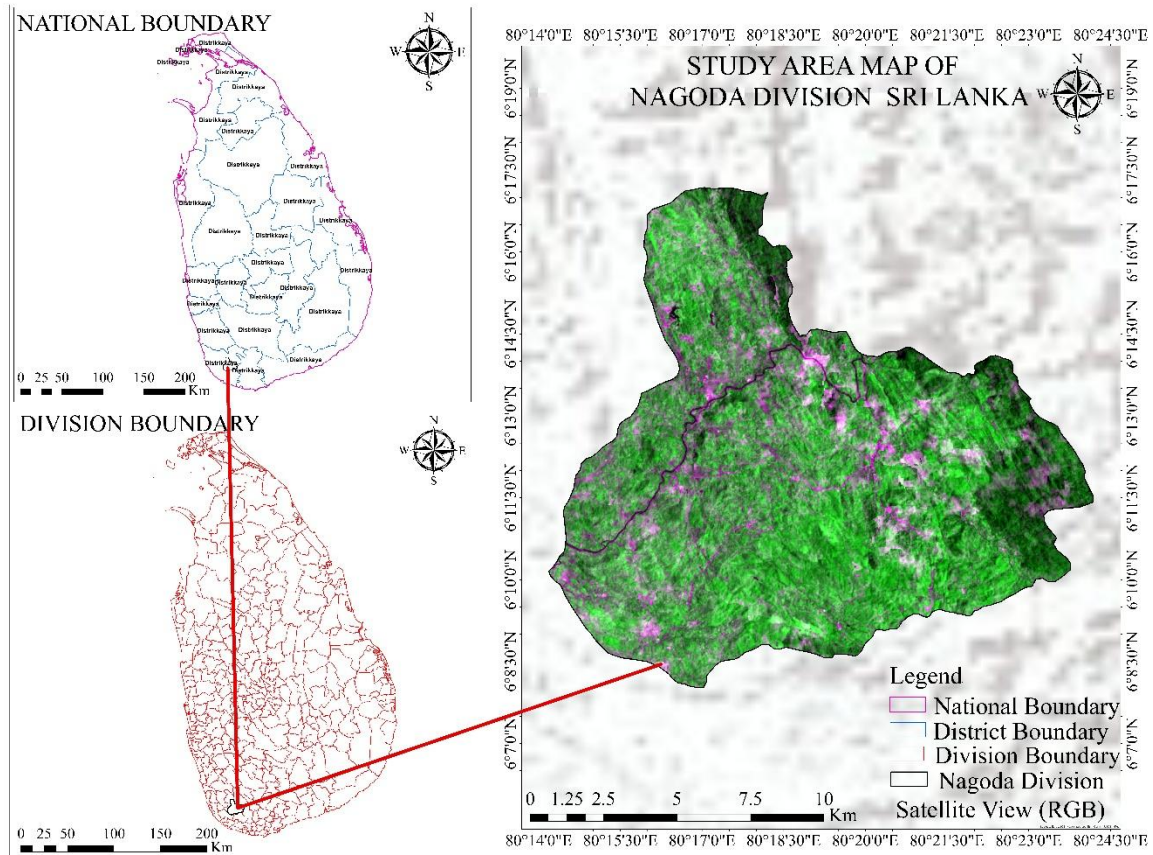
Source: Developed by author, 2024

The sample included both men and women aged 25 to 70 years. A separate interview guide was used for those respondents to explore individual-level experiences regarding the social and environmental impacts of climate change. The demographic information of the respondents is presented in Table 1. Data collection was carried out using a semi-structured interview guide.

Table 1: Demographic information of the respondents in selected GN divisions

Index	Sex	Occupation	Age	GN Division
		Key Informants		
1	F	Grama Niladhari	52	Gammaddegoda North
2	F	Economic Development Officer	42	Kurupanawa
3	F	Samurdhi Officer	45	Gonalagoda
4	M	Disaster Management Officer	37	Nagoda DS Division
5	M	Social Service Officer	58	Nagoda DS Division
6	F	Agricultural Officer	53	Nagoda DS Division
7	M	Chairman of Farmers' Association	62	Gamaddegoda South
8	M	Chairman of Tea Association	69	Nagoda
9	M	Doctor from the MOH, and a	47	Udugama MOH Office
10	M	Physical Health Inspector (PHI)	32	Udugama MOH Office
		Respondents for Semi Structured Interviews		
1	M	Farmer	32	Nagoda
2	M	Tea Palter	37	Nagoda
3	M	Farmer/ Tea planter	42	Nagoda
4	M	Tea Planter	48	Nagoda
5	F	Tea Planter	43	Nagoda
6	M	Farmer	55	Nagoda
7	M	Tea Planter	52	Gammaddegoda South
8	F	Farmer/ Tea planter	67	Gammaddegoda South
9	M	Tea Planter	70	Gammaddegoda South
10	M	Farmer	49	Gammaddegoda South
11	M	Farmer/ Tea planter	51	Gammaddegoda South
12	M	Farmer/ Tea planter	45	Gammaddegoda South
13	F	Tea Planter	68	Gammaddegoda North
14	F	Farmer/ Tea planter	54	Gammaddegoda North
15	M	Farmer/ Tea planter	47	Gammaddegoda North
16	M	Farmer	56	Gammaddegoda North
17	M	Tea Planter	39	Gammaddegoda North

18	F	Farmer/ Tea planter	53	Gammaddegoda North
19	M	Farmer	61	Kurupanawa
20	M	Farmer/ Tea planter	70	Kurupanawa
21	M	Farmer	36	Kurupanawa
22	M	Farmer	41	Kurupanawa
23	M	Farmer/ Tea planter	40	Kurupanawa
24	M	Farmer	57	Kurupanawa
25	M	Farmer/ Tea planter	44	Gonalagoda
26	F	Farmer/ Tea planter	57	Gonalagoda
27	M	Farmer	64	Gonalagoda
28	F	Farmer/ Tea planter	69	Gonalagoda
29	M	Farmer	56	Gonalagoda
30	F	Farmer/ Tea planter	53	Gonalagoda

Source: Field data, 2023

Before the interviews, the research objectives and data protection/access procedures were explained to the respondents, and their participation was voluntary. They were informed that they could withdraw from the interview at any time following the Helsinki guidelines. The interviews were conducted in Sinhalese, the local language, and recorded with their consent. Semi-structured interviews lasted around 40 to 45 minutes, and data collection stopped when saturation was reached.

Recorded narratives were transcribed verbatim and analysed using hand coding. The analysis was inductive and followed a thematic analysis approach (Tong et al., 2007). Interviews were read, codes were identified, and subthemes and main themes were determined by the researcher. Data segments related to themes were translated into English. After the analysis, the findings were shared with key informants and six community members, who confirmed that the findings were coherent and they understood the connection between climate change impacts and societal vulnerability. The researcher ensured the credibility, transferability, dependability, and conformability of the research findings (Lincoln, et al., 1985). The study also followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines (Tong et al., 2007). Confidentiality guidelines for data and respondent privacy were strictly adhered to, and data were securely stored. This article does not contain any potentially identifiable information. The study design posed no risks to the respondents during the interviews.

RESULTS AND DISCUSSION

Table 2: Themes and descriptors

No.	Themes	Descriptors
1	Decline in livelihood Productivity	Lack of proper income from tea garden
		Lack of sufficient harvest from the paddy field
		Lack of benefit from farming is less than in prior years
		Soil degradation and no natural organic fertiliser and the magnitude of soil stress in flood and drought
		Water scarcity and natural over-sufficiency
		Dryness of Soil during drought
2	Food Insecurity	Flooding and crop damage
		Flooding and cultivation damage
		Moisture stress during droughts and unexpected temperature
		Challenges in Post-Harvest Storage and Processing
3	Livelihood Changes, Migration and Labour Shortage	Pest and Disease Outbreaks
		Less harvesting areas, fewer tea plantation areas and an Agricultural Workforce
		Lack of working conditions due to extreme weather conditions, and difficulty in economic recovery and finding another source of income generation
		Vulnerability and Inequalities in the agriculture sector and Transformation of Climate resilience and changes in livelihood
4	Changes in Employment Patterns	Health risks to workers
		Increased heat stress and rainfall and loss of labour hours
		Deviation of the young generation from the agriculture sector
		Job Loss in Climate-Sensitive Sectors
		Gender Disparities in Employment
5	Increased Cost of Adaptation	High cost of fertilisers
		Increasing cost of maintenance
		Drought-Resistant Seeds and Crops
		Advanced Irrigation Systems
		The increasing cost of pesticides and pest control
6	Threat to Traditional Knowledge	Disruption of Environmental Cycles and Ecosystems
		Erosion of Agricultural Practices
		Loss of Traditional Crops and Water Resources Management
		Undermining of Traditional Knowledge Transmission
		Introduction of New Environmental Challenges
7	Loss of Biodiversity	Shifts in Habitat and Migration Patterns
		Altered Growing Seasons of plants and species
		Increased Spread of Invasive Species and Pests
		Loss of Culturally and traditionally Important Species

Source: Field data, 2023

According to the respondents, four main types of drastic climate change incidents that they have faced for the last three years were identified. The frequency of response that they have faced these disasters is detailed in Table 3.

Table 3: The frequency of responses to facing climate change incidents

The Nature of the Climate Change Incident	Frequency of the Response
Unpredictable Rainfall	24/30
Unpredictable Drought	27/30
Continuous Flood	32/30
Temperature Changes	21/30

Source: Field data, 2023

According to the table, the most prevalent climate change impact in the area is the continuation of floods. The study area is located near the Gin River, one of the largest rivers in the country which has many low-lying areas. Due to development projects like the Southern Expressway, these low-lying areas have been blocked, exacerbating the flood situation in the area. The second major issue faced by the residents is unexpected drought conditions. Although the droughts are short-term, they are intense in the area, leading to rapid evaporation of groundwater and negatively affecting paddy farming and tea plantations. Unpredictable rainfall is the third major concern, with respondents noting that once it starts, it can last for at least two weeks, often in the form of heavy and prolonged rain. This type of rainfall is detrimental to crops, especially in tea plantations where the growth of baby tea leaves is delayed. The final climate change impact reported by the residents is temperature changes, which have been occurring in an unprecedented manner. These rapid and extreme temperature fluctuations are challenging for plantations and threaten the sustainability of harvests.

Theme 01: Decline of Livelihood Productivity

Climate change has significantly diminished the livelihoods and production of the respondents, leading to a direct negative impact on small and medium-sized agricultural communities in the rural sector. The majority of people depend heavily on agricultural activities, such as paddy fields and tea plantations. The selected GNDs are located in a wet zone characterised by tropical weather conditions, making the community reliant on natural rainfall for their agricultural livelihoods.

"For centuries, we have relied solely on natural rainfall for agriculture. This method has sustained our tea plantations and paddy fields for generations." (Male, 70 years old, SI-GS)

The livelihoods of these people are primarily dependent on agriculture, particularly tea plantations and mud farming. However, their productivity has declined significantly due to insufficient income from the tea gardens. This decrease in income has been attributed to factors such as heavy rainfall and unexpected droughts. The previously stable weather conditions in the region supported the tea plantation sector, but the recent changes in weather patterns have posed challenges to its sustainability.

"We used to generate a steady income from our tea plantation, but due to unforeseen heavy rain, the growth patterns of the tea leaves have been disrupted. Instead of our usual schedule of plucking tea once a week or every five days, we now find ourselves plucking tea only once every two weeks in some months. As a result, our income has significantly decreased." (Male, 56 years old, SI - GN)

Insufficient harvest from the paddy fields has also led to lower productivity in the livelihoods of the area. The crops in this region are vulnerable to climate variability and extremes. Sudden floods and drought conditions during the early stages of cultivation negatively impact plant growth and final production.

"Paddy plants absorb nutrients naturally from the soil, and they require a balanced climate for proper growth. When plants are exposed to extreme conditions, it can negatively affect their growth and ultimately impact the harvest. It is crucial to maintain optimal growing conditions for paddy plants to ensure a successful yield." (Male, 64 years old, SI-Gonalagoda)

The lack of benefits from farming is evident in the decreasing income reported by respondents compared to previous years, indicating a decline in livelihood productivity. Respondents attribute this trend to ongoing unexpected climatic changes in the area.

"The weather patterns have been fluctuating significantly, with prolonged periods of heavy rain lasting up to five days and extended dry spells lasting a week or more. These extreme weather conditions are detrimental to agricultural lands and crops. The tea harvest has decreased, leading to a decline in income." (Male, 55 years old, SI- Nagoda)

The agriculture officer further extends this;

"The weather patterns in the area have unexpectedly changed, posing challenges to the favourable conditions needed for agricultural progress. Specifically, heavy rain is detrimental to tea plantations as it can reduce the quality of the lacquer tea leaves and subsequently lower their market price. Additionally, strong winds have also led to a decrease in tea plantation yields." (Male, 70 years old, SI – Nagoda DS office)

Soil degradation, the absence of natural organic fertilisers, and the intensity of soil stress during floods and droughts have significantly reduced the productivity of lands in the area. Adequate nourishment of topsoil is essential for plant growth. Intense rainfall can erode topsoil, leading to decreased fertility and agricultural yields. Additionally, rising temperatures can disrupt plant growth cycles, resulting in poor harvests or crop failures.

"For the past few years, our land's productivity has been declining significantly. Previously, we could grow a variety of crops easily, but now it has become challenging. Our land is now filled with gravel and pebbles due to soil erosion. Previously, the rain was light and lasted for only a few days, but now it is excessive, causing the topsoil to erode and damaging the soil's fertility." (Male, 62 years old, KI- GS)

Uncertainties in the area include the availability of water in rivers during the dry season, soil stress levels, extreme floods, irrigation efficiency, and upstream water usage. While serious droughts were not common in the past, they have now become a regular occurrence. Additionally, heavy rainfall has led to water overflow, posing a threat to agriculture and reducing crop yields.

"We cannot control the weather patterns. Both excessive rainfall and drought can affect the land and crop production simultaneously." (Female, 68 years old, SI- GN)

Theme 02: Food Insecurity

In recent years, the area has experienced increased rainfall variability and delayed onset of monsoon rains, leading to fluctuations in the food harvesting season and production. Climate variability, including temperature and rainfall changes, has negatively affected crop output, with excessive rainfall and higher temperatures damaging plants and reducing production. These factors have resulted in crop and agricultural losses at different stages.

"Excessive rainfall has a detrimental impact on the harvest, particularly during the blooming season of the crop. Heavy rain can destroy flowers, leading to a decrease in the final production. Additionally, high temperatures can cause flowers to dry out. Therefore, moderate rainfall is crucial during this stage to ensure optimal crop growth and yield." (Male, 64 years old, SI - Gonalagoda)

Post-harvest losses throughout the food chain have significant implications for food security as they diminish the available food supply and decrease the income of smallholder farmers. Issues related to post-harvest storage and processing have further exacerbated food security challenges within the community. These respondents reside in the Gin River basin, known as one of the largest and most flood-prone rivers in the country. The region experiences frequent river overflow and flooding due to high rainfall. Low-lying homes are particularly susceptible to flooding, and residents lack adequate methods to safeguard their harvests. A KI has explained the condition;

"The Majority of people living in the river basin are at high risk of flooding, making them particularly vulnerable to post-harvest losses. While they can manage small floods by storing their harvest in the highest parts of their homes, more severe floods leave them with no choice but to lose their crops, increasing their vulnerability to food insecurity." (Female, 45 years old, KI- Goalagoda)

Pests and disease outbreaks are also contributing to the community's food insecurity. Warmer temperatures can lead to an increase in pests and diseases affecting crops, reducing productivity. The rise in temperatures and humidity fluctuations create favourable conditions for pests and plant diseases, posing a threat to agricultural productivity. Farmers may incur higher pesticide costs or suffer complete crop losses, leading to livelihood and food insecurity.

"Pests and insects have spread, causing damage to the harvest. In certain areas of the paddy fields, the rice plants are unable to compete with these pests, resulting in the destruction of a large portion of the field. Last time, we lost our harvest, and it was not enough to sustain us until the next season." (Male, 70 years old, SI-Kurupanawa)

One of the KI further expressed;
"Some tea plantations have been damaged by a peculiar type of insect. These insects bite the young tea leaves and excrete a harmful liquid, leading to damage to the tea leaves

and a decrease in tea production. These insects were not previously present in the area but have emerged due to the increasing heat in the region." (Female, 54 years old, KI- Nagoda DS Division)

Theme 03: Livelihood Changes, Migration and Labour Shortage

The researcher found that climate change has led to changes in livelihoods in the area, resulting in labour migration to other locations due to reduced harvesting areas, tea plantation acreage, and agricultural workforce.

"Due to the flood, my tea plantation was destroyed, leaving me with no work. I am planning to go to Colombo, the capital city, to find a job." (Male, 32 years old, SI - Nagoda)

Climate change has led to changes in people's livelihoods, with the younger generation in the area now pursuing career opportunities abroad or migrating to other cities within the country for temporary work to sustain themselves economically. This shift has resulted in a decline in agricultural labour in the region. Younger generations often migrate to cities in search of better opportunities, leaving behind an ageing population. This demographic shift reduces the rural workforce, leading to labour shortages in agriculture. According to a key informant, the situation is as follows;

"The younger generation lacks interest in agriculture due to the uncertainty of livelihood. Instead, they tend to seek employment opportunities abroad or in the capital city." (Male, 64 years old, SI - Gonalagoda)

Due to vulnerabilities and inequalities in the agriculture sector, there has been a shift in livelihoods in the region. Communities are moving away from agriculture towards more climate-resilient livelihoods. Climate change disproportionately affects women, children, the elderly, and marginalised populations, who often lack the resources to adapt or recover from shocks. This worsens existing inequities, making already fragile livelihoods even more vulnerable. A key informant emphasised this issue;

"Climate change has had a significant impact on women, children, and the elderly population. Last year, we provided compensation to vulnerable victims, with priority given to women and the elderly who have lost their homes. Female-headed households were particularly affected by the damages caused." (Male, 58 years old, KI - Nagoda DS Division)

The lack of working hours due to extreme weather conditions, as well as the challenge of economic sustainability and recovery, are additional impacts of climate change that should be taken into consideration. Finding alternative sources of income generation is crucial in addressing these challenges.

"In the morning, there is intense sunshine, followed by evening thunderstorms with heavy rainfall. The extreme weather conditions of scorching sun and heavy rain are unbearable. Due to this, people can only work for 4 hours in their agricultural fields, leading to economic hardships. This

situation is particularly challenging for wage labourers." (Male, 37 years old, KI- Nagoda DS Division)

Theme 04: Changes in Employment Patterns

Climate change has made agriculture less sustainable as a source of income for farmers and agricultural workers. Unpredictable rainfall, rising temperatures, droughts, and floods have disrupted crop cycles, leading to decreased yields and productivity. Agriculture, being a seasonal livelihood in the region, is particularly vulnerable to these climate-related challenges, especially in areas with paddy farms and tea plantations.

"Although we are involved in tea plantation, our children have no desire to continue in this industry. They believe that it is not sustainable due to past experiences of our plantations being ruined by floods and droughts, which are beyond our control. They are seeking alternative options." (Male, 61 years old, SI - Kurupanawa)

Climate change has resulted in health risks such as leptospirosis, fever, and bacterial infections due to higher levels of rainfall. These risks have also impacted employment patterns, especially in the agriculture sector.

"During the heavy rainy season, paddy fields become saturated with water, leaving no room for excess water to drain. The waterlogged conditions create a breeding ground for leptospirosis, a common disease during this time. Seven cases of leptospirosis were reported during the harvesting period, resulting in one fatality." (Male, 32 years old, KI - Udugama MOH Office)

People often seek casual labour opportunities, such as working on nearby farms, construction sites, or in local markets. These jobs are typically short-term and unstable, making workers susceptible to economic shocks and disruptions caused by climate change.

"I am currently working at a construction site, which provides a steady income, although I am unable to be at home every day." (Male, 37 years old, SI - Nagoda)

The gender dynamics of agricultural livelihoods have been altered by the impacts of climate change in the region. This shift has led to changes in employment patterns, with climate-induced migration causing men to leave rural areas in search of work. This leaves women to manage households and farms with limited resources and support. In some cases, women themselves migrate for employment, often facing unsafe working conditions in the informal sector. In many families, male members have left their villages to seek alternative sources of income, sometimes leaving agricultural tasks to their wives or mothers. Due to repeated exposure to the negative effects of climate change, they are unable to see the sustainability of their tea plantations or agricultural lands.

"My husband used to be fully engaged with the tea plantation, but he has left the tea plantation. Now, I am the one responsible for managing our tea plantation." (Female, 43 years old, SI- Nagoda)

Theme 05: Increased Cost of Adaptation

The increasing costs of climate change adaptation in agricultural communities are driven by factors like adopting new technologies, changing farming practices, and investing in infrastructure to mitigate climate impacts. This financial burden disproportionately affects these small-scale farmers who struggle to access funding, education, and government assistance.

Due to climate change in the area, irrigation systems need to be designed to withstand extreme weather conditions, such as excessive rainfall. With more variable rainfall patterns and longer droughts, farmers need to adopt water-saving and management irrigation methods and systems. However, these systems can be costly, especially for small-scale farmers, and require ongoing maintenance and technical expertise. This poses a challenge for this community.

"During heavy rainfall, it is crucial to keep the irrigation channels and spillways clear to prevent overflow and protect agricultural crop yields. As the system expands, the technology costs will increase." (Male, 62 years old, KI - Gamaddegoda South)

Due to unexpected droughts, traditional seeds and crops have become less productive, requiring the use of drought-resistant seeds and crops. To adapt to dry conditions or extreme weather, farmers need to invest in drought-resistant seeds, which are usually more expensive than conventional seeds. Developing or acquiring climate-resilient crops through biotechnology or selective breeding also adds to the overall cost.

"The agricultural department provides seeds at a low price that are suitable for the local climate. However, during heavy drought seasons, the seeds and young plants are often destroyed. To address this issue, we need to purchase drought-resistant seeds from the private sector, which may require a higher investment." (Male, 32 years old, SI- Nagoda)

Climate adaptation measures should be improved, including the use of fertilisers and soil amendments to enhance agricultural land productivity. Heavy rainfall can lead to soil erosion at various times, affecting soil fertility. To maintain consistent crop yields, farmers need to use fertilisers or soil amendments to counter the impact of changing weather conditions. Soil health may deteriorate due to climate-induced erosion or salinity, leading to increased costs for farmers to restore or enhance soil productivity.

"Normally, we apply fertiliser to the tea plantation every four months to ensure a proper tea harvest. However, heavy rainfall has led to significant soil erosion and damage. As a result, we need to increase the frequency of fertiliser application. This has resulted in higher maintenance costs." (Male, 56 years old, SI- Gonalagoda)

The growing patterns and rapid growth of weeds in tea plantations, exacerbated by heavy rain, have necessitated increased use of weedicides due to the high cost of manual labour and challenging weather conditions as it extreme.

This frequent application of weedicides has led to higher costs for tea plantation owners. Changing climate conditions, including shifting humidity patterns and warmer temperatures, have created favourable conditions for pests and diseases to thrive. Consequently, farmers are compelled to invest in more pesticides or integrated pest management (IPM) systems to protect their crops and control weeds, adding to the overall expenses of farming in the tea plantation sector.

"The high labour costs and time-consuming process of manual weed removal in the tea plantation have led us to use herbicides instead. Herbicide application only takes two days to eliminate the weeds. However, heavy rainfall can cause weed seeds to spread and regrow quickly, requiring more frequent herbicide applications." (Male, 45 years old, SI- GS)

Theme 06: Threat to Indigenous/ Traditional Knowledge

Rural communities rely heavily on the local environment and predictable natural cycles. However, climate change is now threatening these traditional practices and knowledge based on the local environment. The disruption of environmental cycles and ecosystems poses a significant danger to the transmission and effectiveness of traditional knowledge within rural communities. This has created challenges for communities that have historically depended on these practices for survival, agriculture, and resource management. This knowledge, based on centuries of observation and experience with local weather patterns, seasons, and ecosystems, is becoming less reliable as the climate changes. Unpredictable temperatures, rainfall, and seasonal cycles make it challenging for rural communities to cultivate and harvest crops using traditional methods.

"All farming activities were previously based on the climate. Decisions were made according to the weather conditions. However, with unpredictable climate changes, decisions made based on past climate patterns have proven to be unreliable." (Male, 69 years old, SI - Gonalagoda)

Due to climate change, rural areas are now experiencing a shift in their harvesting seasons. They used to harvest two seasons, Yala (from March to August) and Maha (from September to March of the following year). However, they have now lost the Yala season, which typically occurs between March and August. They are now only able to harvest the Maha season, which takes place from November to April of the following year due to unpredictable conditions. The changing seasons have had a significant impact on agricultural practices in these areas.

"We used to cultivate two seasons annually, but for the past five years, we have only been cultivating the Maha season. This season starts late in November due to flood conditions in September and October. To overcome the floods, we delay cultivating until the end of November. However, we also face a threat of drought from February to March." (Male, 56 years old, SI - GN)

Traditional knowledge is often tailored to specific environments, but climate change is undermining and devaluing these knowledge systems. This puts rural communities at risk as they struggle to adapt to new and unfamiliar conditions. Climate-related activities that were once used to plan agricultural methods are no longer effective, leading to confusion and uncertainty. The interaction between animal practices and climate activities also impacts the timing and duration of production, but these dynamics have shifted, leaving communities ill-equipped to make informed decisions.

"During the fallow period, the fields are frequented by various types of cranes during the day, and in the evening, heavy rain accompanied by thunderstorms occurs. This rain lasts for four to five hours, filling the entire paddy fields with water by the following morning. This phenomenon is known as "Kunu Pidhuru Watarama." This small flood helps clear the agricultural lands, signalling to farmers that it is time to start cultivation. However, due to the ongoing continuous flooding, it has become difficult to identify the traditional "Kunu Pidhuru Watarama." (Male, 70 years old, SI - Kurupanawa)

Climate change has disrupted traditional agricultural practices. Methods such as crop rotation and seed selection, which are typically based on long-term environmental cycles, are no longer as effective due to the unpredictability caused by climate change. The village has historically depended on rain-fed agriculture, but with increasingly frequent and severe droughts, these traditional techniques are no longer sustainable.

The loss of traditional crops and water resources management is another impact of climate. The farming systems of the community depended on cultivating native or traditional crop varieties adapted to local climates and soils. The cultivation and exiting of traditional crops and seeds is becoming increasingly challenging due to rising temperatures, fluctuating rainfall patterns, and the emergence of new pests and diseases in the region.

"We used to grow tea and rubber in this area due to the favourable climate conditions. However, it has become increasingly difficult to match the crop suitability with the extreme weather conditions. Despite our efforts to continue growing these crops, we are facing challenges in achieving proper harvests and reaping benefits from them. As a result, some people have abandoned these crops." (Male, 61 years old,SI - Kurupanawa)

Climate change has posed a significant challenge to traditional water management systems that depend on local knowledge. The community has historically relied on traditional irrigation systems and flood cycle management, which have been effective in prevailing weather conditions. However, these systems are now being rendered ineffective by the increasing variability in water availability caused by climate change. As traditional water sources dry up or become filled up, the community is struggling to manage water resources sustainably.

"We rely solely on rainwater for our agricultural lands and adhere to traditional practices for management. However, excessive rainfall or droughts in the area have made it challenging to sustain these traditional methods and systems." (Male, 61 years old, SI - Kurupanawa).

In this rural community, traditional knowledge is transmitted orally from generation to generation through storytelling, practical experience, and observation. Elders have relied on reliable weather patterns for farming, but climate change is now disrupting these knowledge systems by introducing unfamiliar conditions. This may lead to a knowledge gap as younger generations may not be able to learn the same practices from the elders.

"Recently, I taught my son how to plough the fields, and he followed my instructions diligently. I advised him to plough in preparation for light rain in the evening, which would help the seeds settle in the soil for protection and nutrition. Unfortunately, there was no rain for two weeks after ploughing, leaving our paddy field vulnerable to bird attacks. Hundreds and thousands of birds descended on the land and devoured the seeds." (Male, 64 years old, SI - Gonalagoda)

Theme 07: Loss of Agricultural Sensitive Biodiversity

Climate change-induced biodiversity loss has far-reaching consequences for ecosystems, agriculture, and human lives, particularly for rural communities that depend on local biodiversity for food, medicine, livelihoods, and cultural practices. Climate change disrupts ecosystems, leading to species extinction, habitat destruction, and a decline in ecosystem functioning. These changes have significant impacts on communities that heavily rely on biodiversity for their survival.

Climate change-related incidents are altering habitat and migration patterns, making some ecosystems more vulnerable to invasive species that outcompete native ones. Warmer temperatures may also encourage pests and diseases to thrive, harming plants, animals, and humans. These changes decrease biodiversity by displacing or eradicating native species.

"The bee population has decreased significantly in this area. In the past, we used to see bees commonly in the morning, especially during the blossoming season. However, due to heavy rain, there has been a lack of blossoms, which has directly affected our farming, particularly vegetable farming." (Male, 57 years old, SI - Kurupanawa)

The agricultural officer extended this;
"The bee population in the area is declining due to extreme weather conditions, which has had a negative impact on pollination. This has led to grievances among people regarding the yield and productivity of agricultural work. The heavy rainfall has caused the loss of flower buds at a very young age, and the remaining buds are not being pollinated properly." (Male, 53 years old, KI – Nagoda DS Division)

Climate change has negatively impacted the area by disrupting growing seasons and facilitating the spread of invasive species and pests. The altered seasonal patterns have caused a mismatch in the life cycles of plants and animals. Additionally, invasive plant species and pests have proliferated in the region, posing a significant threat to agricultural practices.

"We have noticed several unfamiliar species of pests in the ground that we have never encountered before. When we asked officers about them, they also did not have information. Nowadays, there is a variety of insects that are feeding on baby tea leaves, posing a threat to the tea plantation." (Male, 61 years old, SI - Kurupanawa)

Another respondent extends this;
"We cannot go to the garden because a plant species has spread throughout it, causing severe itching when touched. I have observed that these plants have proliferated in our area following the recent floods. Despite our efforts to remove them, they continue to spread rapidly." (Female, 53 years old, SI- GN)

The seven domains of climate change impact collectively affect the community's quality of life and increase its vulnerability. This impact is illustrated in Figure 2 below.

Figure 2: Climate change impact domains of small and medium-scale rural farmers in the selected GN Division
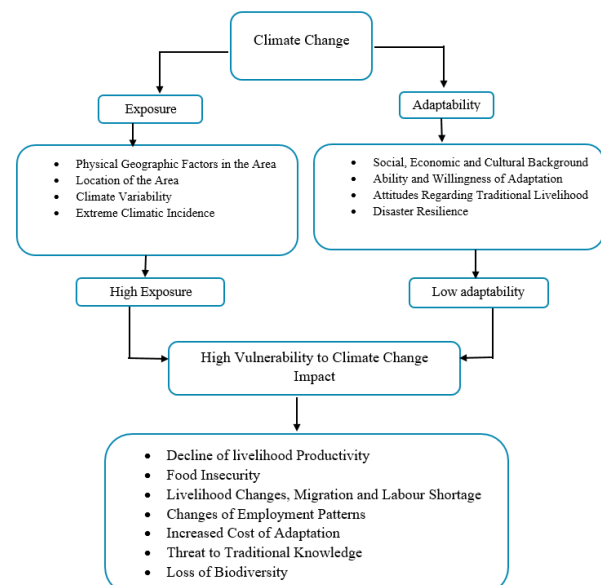
Source: Developed by author, 2024

Discussion

This study highlights the significant impact of climate change on rural areas, which are often overlooked, climate change vulnerable sectors, including rural areas with a large number of people depending on agriculture. The findings offer novel standpoints on the climate change discussion in rural areas of South Asia, where the socioeconomic aspect has been underrepresented in previous empirical research on climate change.

A significant amount of research on the impact of climate change in Sri Lanka and the South Asian region has primarily focused on environmental impacts, particularly on food insecurity and poverty (Bandara & Cai, 2014; Chakraborty & Newton, 2011). This research uniquely focuses on the social determinants of climate change in rural communities that rely on agriculture as their main livelihood. Through the findings of the study, the negative impacts and challenges of climate change in rural areas have been discussed in detail. The social impact of climate change had not been fully explored, and our research aimed to fill this gap through our

findings (Chithranayana & Punyawardena, 2014; Cruz, et al. 2007).

The research identified four main types of climate change incidents that occur frequently in the area: Unpredictable rainfall and droughts, continuous flooding, and temperature changes. The research has identified four common types of climate change events that occur frequently in the study area and their impact on the community.

Numerous studies have highlighted food insecurity as a major issue exacerbated by the impact of climate change (Dietz et al., 2020; Esham & Garforth, 2013). However, this study reveals that the primary concern resulting from climate change is the economic impact, leading to various related issues. In Sri Lanka, where the dimension of livelihoods is highly diversified, the majority of people residing in rural and remote areas of the country rely on agricultural livelihoods, estimated to be more than 80% of the rural community (Statistics Department, 2022). Agricultural livelihoods face challenges that have a negative impact on these communities, particularly due to heavy reliance on agriculture and related industries, which are greatly influenced by agro-climatic and topographic factors (He et al., 2021). The study found that the impact of climate change on livelihoods is primarily economic, leading to challenges such as loss of income and economic instability. Shifts in gender roles in agriculture, changes in livelihood patterns, and labour shortages due to migration have emerged as related issues alongside economic instability and income losses.

The gender dynamics in the agricultural sector are diverse, with distinct roles for men and women. Research indicates that climate change has significantly altered the gender dynamics of rural agricultural livelihoods, resulting in changes in livelihood patterns. These changes have made women in the community more vulnerable. (Panabokke & Punyawardena (2010) revealed that women are more vulnerable overall, regardless of age, educational attainment, or location. This vulnerability stems from women's limited access to productive resources, low participation in adaptation decision-making, and heavy domestic responsibilities. Although women face similar levels of exposure to climate change impacts as men, they encounter greater challenges in adapting to these changes (Owusu et al., 2018).

As more individuals in the area move away from agricultural livelihoods, there is a decreasing number of workers available for essential tasks such as planting, harvesting, and livestock management. This labour shortage is negatively impacting food production and food security in the community. Agriculture is most affected by climate change. Farming become more viable due to climate shocks including droughts, floods, and soil erosion (Thomas, 2010). This has resulted in a significant number of rural workers moving to cities, leading to a shortage of labour in the agricultural sector in rural areas and the decline of traditional livelihoods. The lack of workers in agriculture results in lower agricultural output, worsening food insecurity and poverty (Tol, 2009).

The research revealed that food security and productivity in the area are directly threatened by the incidence of climate change. Climate-driven declines in agricultural productivity are reducing the viability of farming as a livelihood (Ingram et al., 2012). The reliance on self-farming for food supply increases the risk of food shortages and insecurity due to damage to agricultural land and post-harvest losses from floods in the area. The increasing temperatures and extreme weather events will worsen storage losses unless storage facilities are enhanced to withstand the impacts of climate change (Koralegedara et al., 2015). Increases in flooding during the monsoon season and the continuation of floods could lead to significant damage to rice crops, impacting food security, particularly in rural areas. The most vulnerable communities, including poor women and children, are at risk (Mirza, 2010)

Agricultural workers confront a number of climate-related health concerns. These include exposure to heat and other extreme weather, increased chemical exposure due to greater pest presence, disease-carrying pests such as mosquitos and ticks, and deteriorated air quality (Gamble, et al., 2016). Climate change has had a detrimental impact on the health of people in the area, leading to an increase in cases of leptospirosis and skin diseases during cultivation and harvesting seasons due to extreme weather patterns. Although the weather conditions are harsh, they cannot stop the livelihood activities in the area hence the main livelihood is agriculture-related. Leptospirosis among paddy workers is linked to environmental factors such as water contamination, wet conditions, and working in abandoned paddy fields due to heavy rain conditions. Working in abandoned paddy fields increases the risk of contracting the disease (Udayanga et al., 2024). The lack of awareness about health issues related to climate change is a significant factor contributing to the spread of diseases during climate events. It is crucial to educate people about the diseases that can arise due to climate variations, such as floods and extreme temperatures. Public authorities should collaborate with community organisations to provide support during the post-disaster period and empower local populations to take proactive prevention measures (ibid).

Several studies have explored the use of traditional and indigenous knowledge for climate change adaptation (Indigenous Knowledge Is Crucial in the Fight against Climate Change – Here's Why, n.d.; Makondo & Thomas, 2018), However, very little attention has been given to the impact of climate change on traditional and local knowledge. Traditional and local knowledge, influenced by human-environment interactions, is deeply embedded in cultural contexts. It can be instrumental in assisting communities to adapt to global challenges such as climate change (Adams & Cuecuecha, 2013). This research has shown that climate change is devaluing traditional knowledge and posing a threat to its preservation. The utilisation of traditional climate-based knowledge for agricultural practices has proven to be ineffective. Climate change has altered the agricultural calendar that a community has followed for centuries. To adapt to these changes, the community is modifying its traditional agricultural calendar, diversifying crops, adopting more sustainable farming practices, and exploring alternative sources of income.

Some researchers have highlighted the impact of climate change on biodiversity loss in various studies (Lai et al., 2022; Audusseau et al., 2024; Wilson & Piper, 2008; Nhapi, 2021). Studies have shown that the decline in biodiversity caused by climate change has adverse effects on agricultural practices, particularly concerning seasonal variations and pollination (Johnson et al., 2022). The recent changes in weather patterns have caused shifts in the rhythm of the weather, leading to disruptions in ecosystems. These changes have drastically altered animal habitats, migration patterns, and plant extinction in the affected areas. The alterations in biodiversity resulting from climate change have intensified the competition between agricultural-friendly plants and species and invasive species and pests for survival. Moreover, the shifting breeding patterns and behaviours of agricultural-friendly birds, worms, and crucial species like bees have heightened the risk to insect populations and the pollination process (Nhapi, 2021).

CONCLUSION

Climate change poses significant challenges to small and medium-scale agricultural communities in Sri Lanka, jeopardizing food security, livelihoods, and the rural economy. Droughts, floods, and erratic weather patterns are reducing agricultural productivity and worsening existing issues. Traditional agricultural practices and methods, which have historically provided resilience, are now under pressure from climate change. Limited access to resources and technology is hindering communities' ability to adapt effectively. To address these risks, a comprehensive approach that combines social and technological solutions is needed. Collaboration between scientific experts and local knowledge is crucial at the policy level to enhance resilience in the agricultural sector and safeguard the livelihoods of rural communities in Sri Lanka from the impacts of climate change.

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The Influence of Morphological Awareness and Vocabulary Depth on Academic English Writing Skills of Undergraduates

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Abstract

Developing academic English writing skills in undergraduates is a challenging task for teachers and students, as it is a complex process. Morphological awareness and vocabulary depth may influence academic English writing skills in tertiary-level students. Therefore, this study investigated the effect of morphological awareness and vocabulary depth on academic English writing skills in English as second language undergraduates. The study was conducted with 110 undergraduates from a public university in Sri Lanka. The instruments used for data collection were a demographic questionnaire, standardised measures of morphological awareness and vocabulary depth, and academic English essays. The essays were evaluated using standardised rubrics. The data were analysed using several statistical techniques, including hierarchical regression analysis, to explore the extent of influence of the independent variables on academic writing skills. The findings showed that morphological awareness had a greater independent effect on academic writing skills than vocabulary depth. Students with higher morphological awareness had better grammatical accuracy and coherence in their writing. Findings also showed that while vocabulary depth contributed to revisiting the lexical resources, its strength was less than that of morphological awareness. The findings indicated that morphological awareness is a more promising area for enhancing English academic writing skills in tertiary-level students. Morphological awareness should be incorporated into academic English language programs to improve students' academic writing skills.

Keywords: Academic Writing Skills, English Language, Morphological Awareness, Undergraduates, Vocabulary Depth

INTRODUCTION

Academic writing in English plays a critical role in facilitating effective written communication within the academic community in English-medium tertiary institutions (Hyland, 2006; Flowerdew, 2015). Academic writing skills enable students to successfully complete their studies and participate in global academic discourse (Lillis & Scott, 2007; Hyland, 2019). Since academic achievements are mainly judged by written assessments, proficiency in academic writing is vital in reaching educational goals (Wingate, 2012).

Developing English academic writing skills is a complex process since it is associated with non-linguistic elements: cognitive abilities, educational background, motivation, organisational skills, and psychological factors, and linguistic elements: grammar, sentence structures, and vocabulary knowledge (Gharabally, 2015; Schoonen et al., 2003). English writing skills are more challenging for undergraduates than listening, speaking, and reading skills (Gustilo & Magno, 2012; Younes & Albalawi, 2015). Academic writing demands precision, objectivity, clarity, conciseness, structured organisation, and the use of precise vocabulary and straightforward language. It is a structured, evidence-based, and logically organised form of communication that involves assessing sources, comparing and contrasting ideas, and critically analysing them to reach reasoned conclusions. The complexity of academic writing poses challenges for both teachers and students, with tertiary-level learners often struggling to complete assignments, essays, research proposals, and reports due to insufficient writing proficiency (Hyland, 2019). Effective academic writing relies on characteristics such as formality, accuracy, coherence, cohesion, and objectivity, which can be achieved through the use of appropriate vocabulary and grammatically accurate, meaningful sentences (Biber, Grey, & Poonpon, 2011; Paltridge, 2020).

Morphemes are the meaningful units in a language, and morphology is the study of the internal structure of the words, how words are formed in a language and their relationship to other words in the same language. Morphological awareness is the ability to identify the smallest units of meaning in a language and use the knowledge of word structure and formation, its relation to other words, and its grammatical and syntactic properties accurately and correctly in receiving and producing meaning in a language. To be familiar with the writing system of a language and construct correct and meaningful sentences and paragraphs, one needs to identify these units. Kuo and

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Anderson (2006) and Öz (2014) suggested that morphological awareness enables language learners to engage with the writing system of a language. Morphological awareness is necessary to understand the syntactic connection of a word and unlock its meaning through morphemic analysis (Zaretsky & Russak, 2024). It provides information on sentence and paragraph structures, enabling learners to comprehend the morphemic structure of words and their derived meanings (Kieffer et al., 2013). Morphological awareness enables students to manipulate lexical, grammatical, and syntactic properties to produce an accurate, coherent, and cohesive piece of academic writing. Moreover, English is a morphophonemic language (Venezky, 1970), and therefore in English academic writing, morphological awareness supports writers to see the multiple connections between the form, structure, and meaning of words.

Morphemes make words through their association, and a word can be formed with one or more morphemes (e.g., approve (one morpheme), preapproval (three morphemes: pre- approve -al). In addition, morphemes involve word structure attributes (e.g., "joyful -ness" "joyfulness" or "significant - ly" "significantly") and syntactic structure attributes (e.g., adding "-er" to "sing" forms "singer", and which consequently changes the word from a verb to a noun, adding "-ly" to "significant" creates "significantly", and thus changes the word from an adjective to an adverb, adding "-al" to "sensation" creates "sensational", which is a way of changing the word from a noun to an adjective, adding "-ness" to "truthful" creates "truthfulness", which makes the word a noun, adding "-s" to "play" creates "plays", which turns the word from plural to singular, adding "-s" to "girl" creates "girls", which now makes the word into a plural word "girls"). Such patterns are used to form words, alter words, and unite them in the English language, where the morpheme plays the role of meaning and function in this language. Conceptualising the properties of words and their syntactic structures may assist in creating coherent sentences, logically introducing ideas, and producing academic pieces of writing.

Academic writing is a language-based activity in which a coherent academic text is produced using linguistic elements such as word structure and sentence structure (morphological awareness), collocations, connotations, and semantic changes (vocabulary depth). A deep grasp of word forms, how these words are combined in phrases, their meanings, and the rules they follow in the language can guide writers in their task of putting ideas together and structuring arguments in academic writing. Consequently, it is logical to hold a point of view that morphological awareness, as well as vocabulary depth, can be seen as an extraordinary factor in empowering one's abilities to determine the meanings of some unknown words and their interactions with other words and in coding various types of complex syntactic structures as elements of good academic writing.

LITERATURE REVIEW

Academic English writing skills, a key dependent variable in this study, can be explained within the context of different theoretical frameworks. For example, the Cognitive Process Theory of Writing (Flower & Hayes, 1981) describes writing as a dynamic, goal-driven process. This framework concentrates on the mental processes that are at work in writing, focusing on planning, translating the mentally created ideas into writing, and finally revising the writing. This framework highlights how writing is affected by cognitive abilities developed through knowledge, motivation, and previous writing experiences, and it expresses the importance of both knowledge of word structures and the lexical resources for organising a well-formed and coherent academic piece. The Self-Efficacy Theory (Bandura, 1997) also provides insight into the motivational aspect that underlies academic writing and indicates that students' beliefs in their writing abilities are likely to influence their performance and perseverance in pursuing academic writing proficiency. The theory also relates to the student's writing quality in differing self-efficacy, where success depends on whether students believe they can apply the selected vocabulary resources and morphologically appropriate structures. It indicated that to succeed in academic writing, students' perception of their linguistic abilities would increase their performance within academic writing, thereby stressing the importance of both morphological awareness and depth of vocabulary.

Morphological awareness is an essential aspect of an individual's language proficiency and can be explained within the context of the Morphological Structure Awareness Theory (Carlisle, 2000). According to the theory, morphological awareness plays a significant role in reading and writing. The Dual-Route Theory of Word Recognition (Coltheart, 2005) also presented the cognitive perspective that morphological processing occurs through both lexical (whole-word) and sub-lexical (morpheme-based) pathways; both show the complexity of morphological awareness in academic writing. Additionally, while Ouellette (2006) suggested that the ability to recognise how words are built gives learners a tool to think critically and enables them to write strong academic arguments, Goodwin & Ahn (2013) argued that morphological awareness helps writers develop the ability to select precise and varied words, thereby improving the flow and formality of their writing. Ouellette (2006) further highlighted that understanding word structures develops critical thinking, argumentative, and analytical skills required for academic writing. It aids writers in decomposing difficult words, improving their writing fluency, and using vocabulary effectively (Zukowski, 2009). It influences sentence construction by promoting grammatical accuracy and improving sentence quality through the use of a broader vocabulary (Carlisle, 2007; Kuo & Anderson, 2006). In addition, morphological awareness aids self-editing, allowing writers to spot errors and inconsistencies in their drafts, leading to polished revisions and final drafts (Goodwin & Ahn, 2013). Additionally, writing skills are correlated with morphological awareness, as suggested by Carlisle and Feldman (2003), Liu and McBride-Chang (2010), and Silva and Martins-Reis (2017). In terms of academic writing, the writer who is aware of these morphemes may be better able to understand them and their relationship with other words around them and encode them in academic writing. Furthermore, it is argued that morphological awareness is a fundamental aspect of language that impacts various linguistic skills, including reading comprehension (Samaraweera, 2019), vocabulary acquisition (Carlisle, 2000), and writing skills (Goodwin & Ahn, 2013; Wakely et al., 2006), and through them, it influences academic writing skills. However, its direct

influence on English academic writing is less explored and understood.

Besides morphological awareness, vocabulary depth may also influence English academic writing skills. Generally, vocabulary contains two aspects: breadth of vocabulary (number of known words) and depth of vocabulary (how well the words are known) (Qian, 1999; Read, 1988). However, although both aspects contribute to the construction of meaning in a language (Qian, 1999), only depth of vocabulary is considered in this study as it involves multiple intricate dimensions that may influence the academic writing skills of adult language learners. Depth of vocabulary knowledge refers to awareness of different aspects of words, such as multiple meanings, collocations, connotations, semantic change, grammatical function, syntactic elements, and constraints on use, and the ability to manipulate them in constructing a wider range of meaning in a language. In line with this, while Kieffer and Lesaux (2012) and Qian (1999) define depth of vocabulary knowledge as the individual's understanding of the various meanings of a word and how these inter-relate and can be used appropriately in different contexts, Read & Read (2000) and Meara and Wolter (2004) suggest that depth of vocabulary means how well the learner knows the word. Although many studies (Loewen & Ellis, 2004; Masrai & Milton, 2021; Szabo et al., 2021) focused on breadth of vocabulary and academic achievements, it seems that few researches focused on depth of vocabulary and academic achievement, particularly academic writing. However, Qian, (2020) argued that depth is now recognised as crucial for advanced language tasks, including producing precise and sophisticated academic writing. Recent studies are increasingly exploring this dimension, highlighting its importance in enhancing academic success.

Vocabulary is a key element in creating written meanings in a language and is a prime reflection of academic success (Nichols & Rupley, (2004); Naeimi, Soltani, & Damavand, (2013). While deep knowledge of words helps writers choose correct and precise words for accurate encoding, the lexical resource is a critical aspect in assessing the quality of writing. The lack of lexical resources hinders the production of quality writing, as noted by Nation (2001). Vocabulary knowledge is imperative in academic writing since it helps individuals maintain clarity, flow, brevity, focus, coherence, and cohesion and develop arguments in academic writing. Depth of vocabulary knowledge enables a language user to accurately comprehend, interpret, and create meanings, which are essential for effective communication in academic and professional settings. In academic writing, this knowledge may aid in expressing complex ideas concisely, avoiding repetitive language, and enhancing readability. It also may maintain precision, build cohesive arguments, link ideas, and maintain academic standards. In line with this view, Nation (2001), Zwiers (2008), and Schmitt (2010) asserted that well-developed vocabulary knowledge supports the clear and effective communication of complex ideas, enables nuanced analysis, and helps construct logical, coherent arguments in writing. Expanding one's vocabulary enhances writing in academic contexts, enabling writers to present ideas professionally and maintain clarity, while a limited vocabulary can result in vague and imprecise writing.

Vocabulary depth, referring to the relations of a learner's knowledge about meanings and relationships between words, finds an explanation in the Depth of Processing Theory (Craik & Lockhart, 1972). This theory indicates, however, that better cognitive involvement with vocabulary items leads to better retention or usage. The Lexical Quality Hypothesis (Perfetti, 2007) supports this claim with its emphasis on constructing high-quality lexical representations, wherein words with well-integrated orthographic, phonological, and semantic properties greatly assist language use in academic contexts. Primarily, earlier studies conducted by Loewen and Ellis (2004) and Masrai and Milton (2021) indicated a correlation between vocabulary depth and academic achievement. That is to say, greater depth in vocabulary knowledge was associated with typically producing clearer, more coherent and more concise academic texts by students. Moreover, vocabulary depth permits students to express more complex ideas effectively, thereby sidestepping vague and repetitive language (Hyland, 2002; Schmitt, 2010). According to the Nation (2001) and Zwiers (2008), vocabulary depth can contribute to the clarity, flow, and coherence of academic writing. Indeed, depth of vocabulary knowledge is of great importance for constructing logical arguments, linking ideas, and maintaining value in academic writing.

Both linguistic (e.g., grammar, morphology, vocabulary) and non-linguistic aspects (e.g., cognitive abilities, educational background, motivation, organisational skills, psychological factors, attitudes, motivation, beliefs, and writing experiences) were considered in academic writing research. However, the significant factors influencing academic writing skills have not been conclusively identified. For example, while Etherington (2008) argued that explicit teaching influences academic writing skills, Tribble and Wingate (2013) and Ganobcsik-Williams (2004) argued that explicit academic writing teaching is ineffective. Furthermore, while some researchers (Ruegg, 2015; Sritrakarn, 2018) suggested that teacher and peer feedback is important in developing academic writing skills, other researchers (Johns, 1991; Petric, 2002).

demonstrated that learners' attitudes influence their academic writing skills. However, it is argued that feedback is not adequate as the learners do not always apply the feedback given by the teachers and peers (Duncan & Noonan, 2007; Pokorny and Pickford, 2010). In addition, while some studies (Kio & Anderson, 2006; Carlisle, 2010; Samaraweera, 2019) suggested that morphological awareness significantly contributed to the development of language skills, other studies suggested that vocabulary (White, Graves, & Slater, 1990; Sedita, 2005) and attitudes, beliefs, and writing experiences (Leki, 1995) influence academic achievement. Although academic writing has been studied extensively (Ganobcsik-Williams, 2004; Tribble & Wingate, 2013), considering linguistic and non-linguistic factors, it is still difficult to determine the most significant factor(s) that contribute to the development of academic writing skills. Therefore, given that morphological and vocabulary awareness may influence academic writing skills and conclusive evidence is not provided to determine the significant factors that contribute to the development of academic writing skills, this study focuses on whether morphological awareness, vocabulary awareness, or both contribute to academic writing skills.

Furthermore, although both morphological awareness and depth of vocabulary are considered among the important contributors to academic writing, there is still a considerable lack of consensus on how they work together in affecting the sparkle of writing, particularly among non-native speakers of English. Although morphological awareness is recognised for enhancing coherence, clarity, and linguistic formality in writing and for minimising spelling errors (Apel & Lawrance, 2011), the direct influence of morphological awareness on English academic writing is still underexplored. While many studies emphasise its role in grammar and vocabulary development (Kuo & Anderson, 2006; Carlisle, 2007), limited research investigates how it specifically impacts the structure, cohesion, and argumentation of academic writing. Furthermore, the role of morphological awareness in aiding the selection of precise words, improving flow, and enhancing formality (Goodwin & Ahn, 2013) is often discussed, yet its combined effect on various linguistic elements such as coherence and cohesion remains inadequately understood. Vocabulary depth, which entails multiple meanings, collocations, connotations, and grammatical functions (Qian, 1999; Read, 1988), is highlighted as an important trait in academic writing, but many researchers have tended to centralise their efforts around vocabulary breadth in light of its correlation with academic achievement (Loewen & Ellis, 2004). Depth of vocabulary—thoughtful incorporation into academic writing is also minimally addressed for its roles in advancing clarity, coherence, and argument-building in the creation of sophisticated academic texts (Qian & Lin, 2020).

While the relationship between morphological awareness and vocabulary has been examined independently, the integrated effect of morphological awareness and vocabulary depth in academic writing has not been exhaustively investigated, particularly for non-native speakers of English. This research gap inhibits the development of targeted instructional procedures aimed at enhancing academic writing proficiency, with particular emphasis on tertiary education.

MATERIALS AND METHODS

The study deploys a quantitative and explanatory research design to determine the relationship between morphological awareness, depth of vocabulary, and academic writing skills of non-native speakers of English. Following the model 'Research Onion' by Saunders, Lewis, and Thornhill (2016), the quantitative approach is justified as it helps objectively analyse numerical data to examine patterns and relationships. The explanatory design has been chosen to understand through causal relationships how morphological awareness and vocabulary depth impact academic writing proficiency. Using this methodological framework, the study intends to provide empirical insight into developing targeted interventions for better academic writing skills in tertiary education.

The study involved 110 adult English as a Second Language (ESL) learners enrolled in a Bachelor of Arts program at a Sri Lankan state university. The selection criterion was based on their use of English as their second language, ensuring relevance to studying ESL academic writing skills in tertiary education. The purposive selection method provided insights specific to similar higher education settings.

Since the research had specific objectives, purposive sampling was chosen as more appropriate because it ensures the selection of participants most closely aligned with the study. To ensure the most relevant profiles entered the study, purposive sampling admits individuals concerning their linguistic and educational background while avoiding less relevant profiles. Given that the study involved academic English writing within a Sri Lankan public university, purposive sampling enabled the researcher to invite participants enrolled in relevant programs whereby the data collected were sure to respond directly to the objectives. Given the scope of the study and the resources available, purposive sampling became the optimum choice since probability sampling would have necessitated a great amount of time and effort to screen a larger population. The purposive sampling procedure was valid since the study intended to examine the specific relationships existing between certain linguistic variables and the academic writing ability of ESL learners, instead of generalisation. The use of purposive sampling was corroborated as the most practical and efficient method for accessing the study's objectives.

The study employed the measures of Word Structure and Syntactic Structure (morphological awareness), depth of vocabulary, and writing of an academic essay and a demographic questionnaire. Word Structure, Morpho-syntactic Structure, and Depth of Vocabulary are measures used in this study which were determined to represent the research goals while providing the most accurate assessment of the respective contributions of morphological awareness and vocabulary depth towards English academic writing skills. These measures were chosen in accordance with sound theoretical frameworks, and existing empirical evidence for their suitability and relevance in relation to the target population of ESL learners. This selection guarantees that the separate measures provide a detailed and accurate analysis of linguistic constructs critical for academic writing success and an overall understanding of the nature of the interaction among morphological and lexical knowledge with academic writing proficiency.

The Word Structure measure was selected to evaluate students' ability to recognise and manipulate morphemes at the word level, which is one of the most fundamental levels of morphological awareness. Such a measure was consistent with Carlisle's (2000) Morphological Structure Awareness Theory, which suggests how important it is for developing morphological awareness to understand the internal structure of words within a language use and production context. According to Feldman, (1992), this test assesses participants' comprehension of the internal structure of words. Empirical studies (e.g., Kuo & Anderson, 2006; Goodwin & Ahn, 2013) have shown the contribution of word-level morphological awareness toward further vocabulary development and improvement in writing proficiency among ESL learners. Assessment of Word Structure assesses the capability of students to attend to internal morphological structure in the decomposition of words, used in synthesising the whole word back using prefixes, suffixes, and roots, all of which are key features for academic writing. This measure has been used in a number of studies (Derwing, 1976; Curinga, 2014; Samaraweera, 2019). The measure consisted of 40 pairs of words. One half

of the word pairs were semantically connected, while the remainder were not.

Examples

1. kind   kindness   (YES)   NO

2. break   breakfast   YES   (NO)

The Morpho-syntactic Structure is an indicator of students' ability in embedding morphological structures into syntactic structures. This indicates that they could compose a more complex, grammatically intelligible sentence. This is examined under the Dual-Route Theory of Word Recognition (Coltheart, 2005), which proposes that reading and writing skills are both developed through whole-word and morpheme-based processing. Research has broadly investigated the relationship between morpho-syntactic awareness in academic writing, as with it comes attention to cohesive devices, syntactic complexity, and formal structures that are required for effective communication (Nagy&Anderson, 1984; Biber, Gray & Poonpon, 2011). The measure used in this research, therefore, assesses the extent to which ESL learners can apply their morphological knowledge in larger syntactic constructions and, thus, in writing for coherence and clarity.

The Morpho-syntactic Structure assessment is undertaken using sentences in a formal register. Such test items with syntactically complex and formally structured sentences should provide a more confident judgment as to participants' ability to apply morpho-syntactic knowledge in academic writing, a vital aspect of the study. The assessment would appropriately reflect the grammatical and structural demands imposed on academic written English; hence, the results would be very meaningful for the inquiry regarding ESL learners' academic writing skills. This measure has been used in several studies, including Carlisle (1995), Curinga (2014), and Samaraweera (2019). There were 30 items in the measure. The participants were required to select the best word out of four options to complete the sentence meaningfully. The root of the four options is the same, but the morphemes are different, and these morphemes provide different grammatical information (e.g., noun, verb, adjective, adverb). See the example below.

The ………………… he gave us took us to the wrong street.

a) directs   (b) directions)   c) directing   d) directed

The inclusion of both word structure and morpho-syntactic structure as measures of morphological awareness adds depth to the analysis, allowing for a more nuanced understanding of how different aspects of morphology impact academic writing skills.

These measures, thus, were selected for a thorough assessment of morphological awareness and an alignment with academic writing's language requirements, reinforcing the study's aim of examining the effect of morphological awareness on English academic writing proficiency. To align the assessment of morphological awareness with the domain of academic writing, the study employs academically familiar words in the testing of morphological knowledge. By relying upon academic vocabulary for such a purpose in the Word Structure measure, the study ensures that the test items reflected the practical influence of the participants' knowledge of word formation and word use in growing academic writing proficiency. Just as the academic vocabulary is allowed through the measures, so does it solidly cement the connection between morphological awareness and academic writing performance.

The assessment of morpho-syntactic structure has been similarly carried out through the production of sentences embedded in formal registers. As Schleppegrell, (2004 and Nation, (2001) suggested ESL students frequently encounter serious problems with morphological and syntactic complexity, which are critical to the production of coherent academic texts Through the use of syntactically complex and formally structured sentences as test items of the assessment, the study measures the participants' ability to use their morpho-syntactic knowledge within their academic writing more accurately. This satisfied the dual demands of grammaticality and structural completion in academic written English and thus made it possible for the findings and discussion of the study to be more relevant to the postulated research objectives concerning the development of ESL learners' academic writing skills.

The measure of depth of vocabulary (Read, 1993) was used to assess participants' depth of vocabulary knowledge. Qian (1999), Choi (2013), and Samaraweera (2019) have used this measure in some of their studies. The test consists of 40 items, with one item being associated with a particular word from two boxes containing four adjectives and four nouns. The participants must put two adjectives in the first box that are similar to the target word. Another adjective chosen in the second box provided collocation with the noun quarantined.

Example:

general

□ closed	□ country
√ □ usual	√ □ reader
□ different	√ □ idea
√ □ whole	□ street

Participants' demographic information (e.g., age, gender, English language learning experience) was collected through a questionnaire.

Three topics with clear instructions were given as part of the Academic Writing assessment, allowing the participants to choose one of the three. A broad selection was desirable in that it catered for different interests and expertise within the participants and made writing learnable and accessible, appropriate, and inclusive for all. Additionally, given that both general knowledge and language proficiency have an important bearing on writing a good academic essay, the provision of an array of topics was important for participants from various backgrounds to successfully engage in the task. The assessment indicated both word and time limits as motivators that discourage redundancy, focus on important information, and ensure cohesive arguments. Such constraints would further help assessors adhere to different frameworks and depict fairness in marking. The answer scripts were evaluated by two assessors according to one rubric, ensuring inter-rater reliability and treatment of subjects' scoring in a less subjective light.

All the measures were piloted with similar samples to determine their appropriateness for the study, evaluate their feasibility, and identify any practical challenges that could affect their validity and reliability in the main study. The pilot study involved 20 ESL learners, selected to reflect the main study population in terms of demographic characteristics such as age, gender, and educational background. These participants were enrolled in the same degree program and had similar English language proficiency levels. Their selection ensured that the pilot study provided reliable and valid insights into the feasibility and effectiveness of the study measures. The internal consistency reliability (Cronbach's Alpha) indicated acceptable reliability levels for all measures (0.77 or above). Overall, the pilot study results indicated that the measures are valid and reliable to collect data for the study (see Table 01).

Table 1: Internal consistency reliability scores for the measures of Morphology and Vocabulary

Tests		**No of items**	**α**
Morphology	Word Structure	30	.756
	Morpho-Syntactic Structure	30	.836
Vocabulary	Depth of Vocabulary	160	.954

Source: Developed by author, 2025

Each participant was given a test booklet containing the assessments of morphological awareness, vocabulary knowledge, and academic essay writing. The purpose and the possible outcome of the study were clearly explained to the participants prior to the assessment. All assessments were administered in group sessions in a quiet, comfortable classroom setting, with participants spaced around the room to avoid copying. The researcher conducted all group testing.

RESULTS AND DISCUSSION

A series of Hierarchical Multiple Regression analyses were performed to determine if both morphological awareness and depth of vocabulary contribute to English academic writing or whether morphological awareness and depth of vocabulary independently contribute to English academic writing. The regression analyses used the Academic Essay Writing measure as the dependent variable, while morphology and vocabulary were used as the independent variables.

The contribution of morphological awareness to English academic writing was assessed by entering morphology into the analyses, while the contribution of depth of vocabulary was assessed by entering depth of vocabulary into the analysis. To determine the combined contribution of both morphology and vocabulary to English academic writing, both were included in the analysis. The variability explained by both together provides an estimate of their combined contribution to English academic writing, whereas the variability explained by each independently provides an estimate of their individual contributions to English academic writing skills (see Table 2).

Table 2: Results of hierarchical regression analysis

	R^2	R^2 Change	Sig. R^2 Change		Beta
Morphology	.476	.476	F=12.25 (*p*<.000)	WS MSS	.046, (p = .784) .663, (p <.000)
Vocabulary	.216	.216	F=7.71 (*p*<.010)	DV	.465, (p =.010)
Vocabulary and Morphology	.494	.018	F=8.44 (p<.349)	WS MSS DV	.021, (p = .903) .599, (p = .003) .156, (p = .349)

Source: Developed by author, 2025

***Note**. WS = Word Structure, MSS = Morpho-Syntactic Structure, DV = Depth of Vocabulary*

The results showed that the morphology measures produced a statistically significant result, explaining approximately 48% of the variance in Academic Essay Writing. Morpho-Syntactic Structure produced a higher Beta value (β = .663, p = .000) than Word Structure (β = .046, p = .784). This dimension attaches a large effect size, according to Cohen's guide, or R² = 0.26. This proves that morphological awareness determines a considerable share in academic writing, supporting the notion that competent academic writers are highly dependent on morphological structures like prefixes, suffixes, and root words. Furthermore, the higher Beta for Morpho-Syntactic Structure (β = .663, p = .000) than for Word Structure (β = .046, p = .784) remains consistent with reasoning. This further signal that combining words into sentences must be in a grammatical context that is meaningful; it is more of a strong predictor of academic writing success rather than mere awareness of word structure.

Therefore, the Morpho-Syntactic Structure measure seemed to be more predictive of Academic Essay Writing than the measure of Word Structure, which may suggest that academic writers rely more on Morpho-Syntactic Structure than Word Structure. Among the two morphology measures, Morpho-Syntactic Structure (β = .663, p < .000) was a stronger predictor than Word Structure (β = .046, p = .784), suggesting that academic writers rely more on their ability to manipulate morpho-syntactic elements than on word-level morphological knowledge. The results also demonstrated that vocabulary produced 22% of the variance in Academic Essay Writing. However, the Beta value indicates that morphology, particularly morpho-syntactic structure produced a significant value (β = .663, p = .000) than depth of vocabulary (β = .465, p = .010). Entry of both morphology and vocabulary measures also produced a statistically significant result explaining approximately 49% of the variance in Academic Essay Writing. However, the beta scores in the final model indicated that only the Morpho-Syntactic Structure was

statistically significant (β = .599, p < .003) compared to the Depth of Vocabulary task (β = .156, p = .349).

The results showed that the morphology measures produced a statistically significant result, explaining approximately 48% of the variance in Academic Essay Writing. According to Cohen's (1988) guidelines, this represents a large effect size, indicating that morphological awareness is a substantial predictor of academic writing. Morpho-Syntactic Structure produced a higher Beta value (β = .663, p = .000) than Word Structure (β = .046, p = .784). Therefore, the Morpho-Syntactic Structure measure seemed to be more predictive of Academic Essay Writing than the measure of Word Structure, which may suggest that academic writers rely more on Morpho-Syntactic Structure than Word Structure.

Therefore, morphological awareness seemed to be more predictive of academic essay writing than the depth of vocabulary, which may suggest that academic writers rely more on morphological awareness, combining words within phrases and sentences, than individual word processing in academic writing. This significant contribution suggests that students who can effectively manipulate morphological elements, such as prefixes, suffixes, and root words tend to produce higher-quality academic essays. The study found that morphological awareness is more important than vocabulary depth in academic writing achievement, as it underlies vocabulary and syntax. While a rich vocabulary is essential for precise and varied expression, academic writers primarily rely on morphological awareness. Both morphological awareness and depth of vocabulary contribute to academic writing performance, but academic writers have a stronger reliance on morphological awareness.

The study found that morphological awareness accounts for about 48% of the variance in English academic writing skills. Writers with morphological awareness can better understand the meanings of words and syntactic relationships within sentences, allowing for clearer and stronger writing without vague or meaningless words, thus effectively communicating complex ideas in academic writing. As stated by Carlisle (2000), students who possess an in-depth understanding of morphemic structures are better able to comprehend word meanings and relationships in sentences, leading to higher-quality writing. While Carlisle (2000) further highlighted that morphological awareness influences writing quality by aiding the structure of the language, organizing ideas, and making the transition from simple thoughts toward complex thoughts, Shany and Biemiller (2006) suggested that morphology is important for writing quality improvement. In their view, decoding basic vocabulary, as well as the use of advanced vocabulary, contributes to syntactic complexity. They further reported that writing with varied lexical items also increases syntactic complexity, which is a necessary aspect of good academic writing. Morphological awareness permits students to use their cognitive powers to get clues to the meanings of new words and relates these to academic writing skills according to Nagy and Anderson (1984) and Samaraweera (2019). Morphological awareness allows students to put new language more accurately into their academic writing in relation to meaning and grammar in sentences and paragraphs.

It was found that morpho-syntactic structure proved its significant predictive power in academic essay writing in English by making it clear, coherent, and deep in argumentation. The morpho-syntactic structure could possibly serve as a more powerful predictor for English academic essay writing than word structure, which means that the conception of a good academic writer probably regards complex morpho-syntactic structures as the principal manner of writing. This result is consistent with Biber (1988) noting how academic writing most significantly implements structural syntax over simpler vocabulary features because the syntactic features allow for more dense information and high abstraction, which makes it easier to express complex ideas in a precise and nuanced way. In academic writing, compound-complex sentences are formed with morpho-syntactic structures that are slightly on the complex side to maintain objectivity, impersonality, formality, coherence, and nuanced arguments (Swales, & Feak, 2012; Conrad, & Biber, 2001). Higher levels of syntactic complexity indicate more sophisticated and effective writing, while simpler vocabulary features are more common in conversational language. Morpho-syntactic structure, rather than word structure, plays a critical role in effective academic writing and is a stronger predictor of the quality of academic writing. Although word structure is crucial for the quality of academic writing, it is limited without the ability to integrate words into complex syntactic structures. Studies (Ortega, 2003; Crossley & McNamara, 2012) suggested that focusing on syntactic complexity in language instruction may better equip students for academic writing demands. Morphological awareness helps students develop strong syntactic skills, understand the importance of coherence and cohesion in academic writing, and learn how to construct effective arguments. Therefore, morpho-syntactic structures should be considered as part of a broader set of linguistic skills necessary for effective academic writing.

Furthermore, morphological awareness, not only directly but also indirectly through other linguistic and non-linguistic skills, may contribute to English academic writing skills (they must be investigated in future research). In the literature, it is argued that morphological awareness is a crucial skill that enhances vocabulary knowledge, reading comprehension, and language processing skills, enabling students to understand complex vocabulary, form grammatically accurate sentences, and express nuanced ideas effectively (Carlisle, 2010; Nagy & Anderson, 1984; Samaraweera, 2019). Morphological awareness influences academic writing skills indirectly through links with other language skills, such as syntax and word finding, and non-language skills like flexibility in thinking and memory. For example, Carlisle (2010) emphasised that knowing about word parts helps students understand new words by looking at their roots, prefixes, and suffixes, improving their vocabulary and making more advanced sentences. Moreover, while Nagy, Berninger, & Abbott (2006) argued that this awareness helps in academic writing through reading skills, vocabulary growth, and understanding texts, Deacon (2012) emphasised that it also helps through cognitive skills like solving problems and critical thinking. Future studies should look deeper into how awareness of word structure connects with other language and thinking skills in academic writing, showing how it helps develop advanced skills like forming arguments and analysing critically.

The second research question aims to address how much of the variance in English writing skills can be accounted for by depth of vocabulary knowledge. Vocabulary depth is shown to have a significant role in English academic writing skills. The present finding concurs with previous research (Qian, 2002; Laufer, & Nation, 1995; Schmitt, & Zimmerman, 2002). These studies emphasised that having a good command of vocabulary facilitates more accurate and sophisticated expression, which is important in academic writing. Nevertheless, the results revealed that even though vocabulary depth is important to a certain degree, it is not as determinative as morphological awareness in English academic writing skills. This could be due to the fact that academic writing often involves synthesizing information and building long chains of argumentation that depend on manipulating morphological structures rather than on mere word knowledge. Previous research (Crossley & McNamara, 2012; Nation, 2001) also confirmed such a view by indicating that vocabulary depth relates primarily to understanding and expressiveness and is more often insufficient for producing sophisticated grammatical flexibility or multidimensional structural variety needed for academic pieces of writing. Douglas and Miller (2016) and Schleppegrell (2004) also argued that specific morpho-syntactic transformations in academic writing cannot be achieved solely by enhancing vocabulary depth, as it also removes clarity and formality. Morphological awareness appears to be a stronger predictor of English academic writing than vocabulary depth, and thus the study proposes that morphological awareness may need greater attention in academic writing instruction. Vocabulary does not affect academic writing considerably, as it does not necessarily lead to better grammar, syntax, or coherence. Furthermore, extensive vocabulary depth does not guarantee good academic writing; a student with extensive vocabulary may struggle with incoherent arguments (Laufer and Goldstein, 2004). According to Nation (2001), vocabulary knowledge alone is not adequate enough for academic success, as morphological structure manipulation is more critical. The current study suggests that while vocabulary is necessary in English academic writing, its effectiveness may depend on how well it is integrated with other linguistic skills.

One of the reasons for the results that morphological awareness contributes to English academic writing skills over and above depth of vocabulary knowledge could be that morphological awareness enhances word formation abilities, allows writers to create new words and forms, supports vocabulary expansion, and enhances writing complexity, all of which are crucial in academic writing. Morphological awareness enhances learners' understanding of words' roles in grammatical constructions, enabling the creation of coherent sentences free from errors. It also enhances their ability to manipulate lexis in multi-layered syntactic structures, crucial for maintaining clarity and precision in academic writing. It facilitates vocabulary acquisition and improves comprehension, especially of difficult English words, which in turn improves writing in general (Bowers, Kirby, Deacon 2010; Carlisle 2000). Morphological awareness aids in word decomposition, enabling students to use words more elaborately, especially in academic writing (Nagy, Berninger, & Abbott 2006). Furthermore, awareness of morphemes enhances vocabulary inferencing and reading comprehension, particularly in English language learners (Kieffer & Lesaux 2007). It also helps students adjust words in various parts of

sentences, which is a requirement while writing for academic purposes.

The third research question explores the association between language skills (morphological awareness and vocabulary depth) and English academic writing skills. The study found that morphological awareness and vocabulary depth significantly enhance English academic writing skills. The study suggests that students with good morphological and vocabulary knowledge are more likely to write academic essays in a structured, coherent, and complex manner. Vocabulary and morphological awareness are interconnected, with a strong vocabulary foundation improving morphological awareness and deepening vocabulary knowledge (Nagy et al., 2006; Carlisle, 2000). Both are crucial language processing skills for understanding academic language, and their roles can overlap in predicting aspects of writing, such as lexical choice and structural variety (Kieffer & Lesaux, 2012).

Morphology and vocabulary account for 48% and 22% of the variance, respectively. However, when combined, they do not significantly enhance the explained variance (49%). Morphological awareness is important in academic writing because it allows the integration of words, which provides meaning along with syntactic awareness. A good vocabulary is necessary for good writing, but it is not sufficient without morphologic syntactic varieties. According to Crossley and McNamara (2012) and Schleppegrell (2004), while academic writing requires knowledge of vocabulary, it also requires the ability to formulate vocabularies into complex morpho-syntactic structures. English academic writing further requires high levels of nominalisation and complex verb phrases, which are due to the morpho-syntactic structures of the English language. As Douglas and Miller (2016) propose, teaching should focus on the morphological aspects so that learners can develop formal as well as complex writing skills, which in turn will enhance their academic success. Morphological awareness has been referred to as critical in academic writing because it enables clarity of syntax while accommodating various lexical structures simultaneously (Carlisle, 2000; Biber, Gray, & Poonpon, 2011). In conclusion, depth of vocabulary shall not be emphasised too much in academic writing, as awareness of morphology has more prominence. This is because an academic text integrates a wide range of pieces of information and phenomena interconnected with each other within arguments, which could be stem mileage at the cost of vocabulary depth. Therefore, morphological awareness has effective importance in achieving good academic writing.

CONCLUSION

The study investigated the relationship between morphological awareness and depth of vocabulary knowledge in academic writing. The findings indicated that morphological awareness and depth of vocabulary contribute to academic writing performance, but academic writers have a stronger reliance on morphological awareness, particularly, morpho-syntactic structure than depth of vocabulary. This demonstrates that vocabulary knowledge alone cannot guarantee successful academic writing. Part of their implication was that curriculum development should move toward a more comprehensive direction such that vocabulary study would ideally intersect

with morphology and syntax instructions. Such a shift would allow teachers to take into thought this matter not only as making students increase their vocabulary but also to teach them how to become effective users of the vocabulary in the context of academic writing. Furthermore, this is a significant insight in terms of implications for writing pedagogy since it suggests that instruction should be directed not just toward expanding the amount of knowledge to help students widen their vocabulary but also toward teaching them about sentence construction and word combinations instead. Such an approach is crucial for students writing in academic settings, where complex sentence structures and clarity of expression are important.

Morphological awareness is crucial for academic writing, but a comprehensive approach considering non-linguistic factors like motivation, attitudes, and practices is needed. Future research should also explore pedagogical strategies and student challenges in acquiring academic writing. However, limitations related to the size of the sample and the scope of variables considered set forth a need for future studies that will build on these results and explore more deeply the relationships between linguistic and non-linguistic factors in English academic writing skills. This study makes significant contributions to the field of academic writing research, particularly in the context of English language learners and writing development. By highlighting the relative importance of morphological awareness compared to vocabulary depth, the research provides valuable insights that challenge previous assumptions in the field. While both morphology and vocabulary are crucial for writing proficiency, the study reveals that morphological awareness, or the ability to manipulate word structures such as prefixes, suffixes, and roots, plays a far more substantial role in predicting academic writing success. This discovery encourages educators and researchers to reconsider the weight placed on vocabulary knowledge alone and to explore the broader importance of word structure and grammar in enhancing academic writing quality.

In conclusion, this research brings a fresh infusion of knowledge by demonstrating through empirical evidence that morphological awareness is a stronger predictor of academic writing performance than vocabulary depth. The study gives more importance to the morpho-syntactic structure than to word-level knowledge, which will urge gradual changes in teaching and testing methods. These results negate earlier assumptions about the role of vocabulary in academic writing and strongly argue for incorporating both morphology and syntax instruction into writing curricula to enhance support for students in their academic writing pursuits.

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From Fear of Missing Out to Belonging: How Social Media and Peer Pressure Shapes Conformity in Young Adults

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Abstract

Social media has become a pervasive force in shaping individual behaviours, yet little is known about the psychological factors driving conformity in this context. Drawing upon Social Influence Theory, which explains how individuals adjust their attitudes and behaviours under the influence of others, this study examines the predictive roles of the need to belong, fear of missing out, and peer pressure on social media usage, while exploring how this usage promotes conformity among young adults. The study addresses a critical research gap by investigating the mediating role of social media usage in these relationships. Data were collected through an online survey from a purposive sample of 471 young adults (58% females, 42% males; M = 19.91, SD = ±2.23), predominantly undergraduate and graduate students from diverse educational institutions in Pakistan. The sample size was determined based on recommendations for path analysis, ensuring sufficient power to detect meaningful relationships. Path analysis revealed that fear of missing out and peer pressure positively predicted social media usage, whereas the need to belong negatively predicted it. Social media usage had a direct effect on conformity and mediated the relationships between the fear of missing out and conformity, as well as the need to belong and conformity. However, its mediating role between peer pressure and conformity was non-significant. These findings shed light on the interplay of psychological factors driving social media behaviour, emphasizing the phenomenon of digital-age conformity and its implications for understanding online social dynamics.

Keywords: Digital Age Conformity, Fear of Missing Out, Need to Belong, Peer Pressure, Social Media Usage

INTRODUCTION

Since digital media use has become so popular these days, it is rare to find someone who doesn't use social media. Media statistics indicate that billions of users use different social networking sites to enter the digital era. Platforms like Instagram, YouTube, TikTok, and Twitter are widely used to connect users (Ahad, & Anshari, 2017). These digital platforms serve not just as channels for interpersonal interaction, but also create settings that considerably impact user behaviour and decision-making processes, notably in terms of conformity. According to the Use and Gratification Model, people get satisfaction when they use technology to fulfil their inner desires, such as seeking approval or feeling a sense of belongingness (Katz et al., 2012). Nonetheless, despite the widespread use of these platforms in daily life, insufficient scholarly attention has been paid to their effects on conformity, a behavioural phenomenon in which individuals adjust their actions or attitudes in response to the presence of others (Cialdini & Goldstein, 2004).

When people perceive that having something is desirable while not having it is uncomfortable, they feel an urge to achieve it (Ku et al., 2013). In sociability, when something is considered highly sociable, its lack is seen as a missed chance. Instant gratification and withdrawal act as antecedents to social networking site usage. Social motivation such as the number of sold-out items and exclusive products affects the user's buying intention (Kukar-Kinney et al., 2016). While extensive literature focuses on these mediums' pervasive adoption there is now a need to shift the attention toward broader issues including user's posting behaviour, time spent on virtual mediums, and psychological factors contributing to social media conformity (Yushi et al., 2018).

Traditional theories of compliance and conformity have concentrated on face-to-face interactions, but the digital sphere introduces a great deal of complexity. Online communication's asynchronous and anonymous features lessen accountability and make it more likely that people may readily express opposing opinions or behaviours (Wijenayake et al., 2020b). In digital environments, normative and informational influence two fundamental concepts of social influence theory remain especially

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pertinent. While normative influence pushes people to comply to be accepted or prevent rejection, informational influence is founded on the desire to follow those who are seen to possess superior knowledge (Deutsch & Gerard, 1955). In the digital domain, these effects appear as interactions such as likes, shares, and comments, in which users seek validation and approval. Social media platforms enhance these dynamics by creating environments favourable for self-comparison and validation (Chin et al. 2015). Thus, there is a significant gap in our understanding of how psychological factors such as fear of missing out, peer pressure, and the need to belong contribute to conformity in these digital contexts. Addressing this gap is critical for understanding the larger societal implications of conformity in the digital age.

LITERATURE REVIEW

The impacts of social media on conformity have been thoroughly documented, but they remain largely unexplored in specific sociocultural contexts, such as Pakistan. The loss of authenticity in favour of controlled online identities exacerbates conformity, as individuals, particularly young adults, adhere to prevalent digital norms in order to acquire social approval (Marwick & Boyd, 2011). Since people who are exposed to social media at an early age are more inclined to adhere to social norms, the loss of identity in the digital age presents significant problems (Allen, 2019).

Several research has documented the link between conformity and social media usage. For instance, Al-Debei (2014), noted that consumers' intention to use social media is influenced by others as they follow peer's recommendations when making decisions. Similarly, food bloggers influence readers' perceptions affecting their food preferences (Tussyadiah et al., 2015). Moreover, online conformity is linked to the number of likes and comments by peers, as people feel more confident when their opinions align with those of the referent group (Egebarak & Ekstorm, 2011).

Several factors can lead to conformity, such as the need for social cohesion, acceptance, perceived personal ignorance, fear of missing out, and peer pressure (Bocian et al., 2024; Kang & Shin, 2020). While conformity can promote social cohesion and cooperation, it can also stifle individuality and critical thinking (Levitan & Verhulst, 2016) because of that it remains a crucial research topic in social psychology as it sheds light on how people develop views and behaviour within social groups. Societal influence theories, particularly the Social Influence Theory (Deutsch & Gerard, 1955) suggest that people change behaviours, attitudes, and beliefs to meet societal standards or expectations, consistent with social media's effect on conformity (Wijenayake et al., 2020a). Social media platforms provide users with vast information, perspectives, and trends, fostering a culture of uniformity (Chen, & Zhuang, 2024). Other studies have suggested that these platforms enable people to regularly acquire prevalent attitudes, behaviours, and values through mechanisms like peer pressure, social comparison, and the need for acceptance (Wong et al., 2019; Jang et al., 2016). Understanding how social media encourages conformity is vital for recognizing its broader societal implications and developing strategies to mitigate potential negative consequences.

One of the factors that potentially leads to conformity is fear of missing out characterized by an apprehensive disappointment over others experiencing fulfilling things. This need drives people to adopt the latest trends to feel included (Przybylski et al., 2013). For example, a study on Flemish teenagers found that fear of missing out significantly predicts problematic social media usage and pubbing behaviour (Franchina et al., 2018). Other studies have found that smartphone addiction is largely driven by this interpersonal trait, which creates an overwhelming need to use social media (Chotpitayasunondh & Douglas, 2016). Another contributing factor is peer pressure which drives people to emulate their social counterparts' attitudes and actions to fit in or avoid social exclusion (Cialdini & Goldstein, 2004). Many young people join various online platforms and learn about social networking sites from friends to escape rejection and shame (Palaniswamy & Ponnuswami, 2013). According to Tussyadiah (2015), people often form perspectives based on the beliefs and behaviours of reference groups. Consequently, they take other's advice in everyday matters such as dining out, purchasing online, or reading blogs (Wang, 2011). Lastly, people are driven by a fundamental need to belong, aligning their attitudes and behaviours with those of social groups to maintain social bonds (Baumeister & Leary, 1995). Social media, allows people to form online communities and join virtual groups (Seidman, 2013). Studies have shown that the desire to belong motivates individuals to use platforms like Instagram (Lee et al., 2015). Other studies confirm that digital platforms, texting, and photo-sharing features enable frequent engagement with like-minded individuals helping them cultivate a sense of belongingness (Liu et al., 2018; Wong et al., 2019). This paper is the first of its kind in the scientific literature to explore psychological factors' influence on online conformity in Pakistan integrating factors typically analyzed separately in prior research (Almohaimmeed, 2019).

This study combines the Social Influence Theory (SIT) and the Use and Gratification Model (UGM) to develop a coherent framework that explains the psychological factors that drive conformity. Social Influence Theory emphasizes the importance of social norms, compliance with group expectations, and the power of perceived expertise in shaping behaviour. It proposes that people match their beliefs and behaviours with those of their social groups in order to maintain their approval and avoid rejection. This idea is consistent with the study's examination of the innate need to belong, the fear of missing out, and the impact of peer pressure, as these factors basically embody the need to conform to perceived social norms (Deutsch & Gerard, 1955). In contrast, the Use and Gratification Model investigates the psychological drivers that drive social media engagement, shedding light on why people actively immerse themselves in social platforms to fulfil specific desires such as seeking affirmation, easing loneliness, or maintaining connections. UGM provides a theoretical framework for understanding how Fear of missing out, the need to belong, and peer pressure drive social media usage, which, in turn, promotes conformity by increasing exposure to societal norms and trends (Katz et al., 2012). By combining SIT and UGM, this study provides a systematic framework in which psychological motivators (FoMo, peer pressure, and the need to belong) drive social media involvement (as defined by UGM), which then promotes conformity through the dynamics outlined by SIT. This synthesis not only highlights

the personal motivations for using social media, but also explains how social media engagement heightens the need to adhere to societal or peer-group norms.

Conceptual Framework

Figure 1: Proposed conceptual framework illustrating the mediating role of social media usage in the relationships among fear of missing out, need to belong, and peer pressure, ultimately predicting conformity
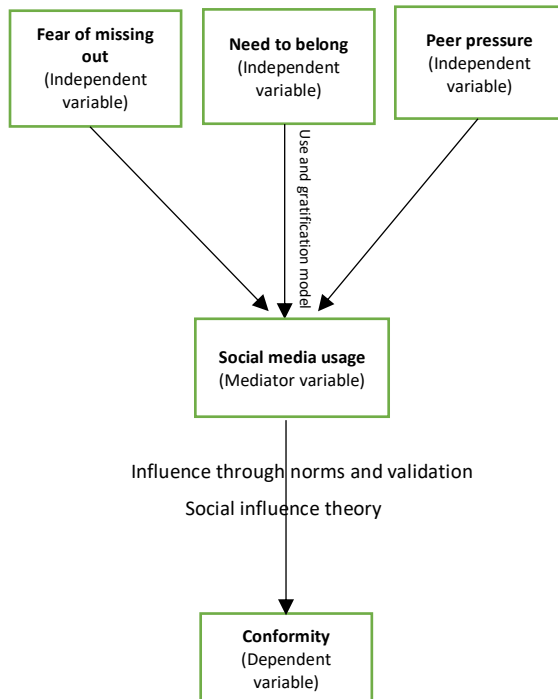
Source: Developed by the authors,2023

References supporting each construct include Przybylski et al. (2013), Baumeister and Leary (1995), Brown et al. (2008), and Cialdini and Goldstein (2004).

Hypotheses

H1: Fear of missing out, the need to belong and peer pressure are positively related to social media usage

H2: Social media usage is positively related to conformity

H3: Social media usage will significantly mediate the relationship between fear of missing out, need to belong, peer pressure, and conformity

MATERIALS AND METHODS

Research Design

The correlational research design is ideal for this investigation because it allows for the examination of relationships between variables such as social media usage, fear of missing out, peer pressure, need to belong, and conformity. This analytical approach provides unique insights into the naturally existing correlations between these factors, which aligns well with the study's aims (Curtis et al., 2016).

Sample and Sampling Strategy

Through the use of structured instruments and a survey technique, data were collected from 471 young adults (15-29) years. The calculation of sample size for the path analysis was executed utilizing the PASS (Power Analysis and Sample Size) software. In accordance with the predetermined

power of 0.80, an alpha threshold of 0.05, and a medium effect size, the required sample size was obtained This calculation is vital to ensure adequate power to identify the anticipated relationships among the variables presented in the research (Hintze, 2011). A purposive sampling methodology was employed in this investigation to deliberately target young adults who are actively engaged with social media, thereby ensuring that the sample accurately mirrors the population of interest. This methodological approach facilitates a more concentrated examination of the interplay between social media usage and conformity among young adults in Pakistan (Rai & Thapa, 2015).

Out of 471 young adults (M = 19.91, SD = ±2.23), 58% were females and 42% were males. Most participants (67.7%) were aged 15-20 years, with 32.3% aged 21-29 years. The majority (76.9%) resided in urban areas, while 23.1% were from rural communities. Additionally, 71.1% were enrolled in public sector institutions, and 62% belonged to nuclear family systems. Responses were collected from various cities, including Multan (45.8%), Bahawalpur (23.3%), Vehari (4.0%), and Layyah (4.6%). For several reasons, this diverse sampling approach was critical. First, young adults qualify as the heaviest users of social networks, which would help observe the effects of digital conformity in depth. According to the Hogan (2022), the population that spends more time on social networks is 18-29 years old. Second, this age group is probably the most appropriate to research from a developmental perspective since issues of identity formation and social development are the most dominant in this age period. Specifically, young adults are influenced easily by their peers as they pass through the process of development from adolescence to adulthood while developing their own identities (Arnett, 2000). This susceptibility makes them more prone to mimic others' behaviours and conform to social norms. Given their pivotal role in shaping digital culture, studying young adults can provide early indicators of emerging conformity patterns that may become more widespread in the future (Lenhart et al., 2010).

Instruments

Fear of Missing Out Scale: The fear of missing out scale developed by Przybylski et al. (2013) assessed the extent to which people feared missing out on rewarding experiences and activities. The scale consists of 10 items and uses a 5-point Likert scale format, where participants were requested to indicate how frequently they experience the apprehensive fear of missing out, ranging from 1 (Not at all) to (Extremely). Items 1, 3, and 7 were reversed scores as without reverse scoring, respondents might tend to agree with all statements regardless of their actual experiences, which could distort the results. The score is treated as continuous and a higher score indicates a higher level of fear experienced by individuals. The reliability of the scale is .87 (Przybylski et al., 2013)

Need to Belong Scale: The need to belong sale developed by Leary et al. (2005) measured a person's desire for acceptance and belongingness. The scale consists of 10 items and uses a 5-point Likert scale format, where participants were requested to indicate how frequently they experience the need to belong to others, ranging from 1 (Not at all true of me) to 5 (extremely true of me). The score

is treated as continuous and a higher score indicates a higher level of belongingness experienced by individuals. The reliability of the scale is .70 (Leary et al., 2005).

Peer Pressure Scale: The peer pressure scale developed by Sunil and Sani, (2011) accessed pressure coming from peers in terms of antisocial activities and risky behaviour. According to the author, a peer is someone who, due to their age, grade, or status, is a member of the same social group as their cohorts and influences their thinking and behaviour. The scale consists of 25 items and uses a 5-point Likert scale format, where participants were requested to indicate how frequently they experience pressure from others, ranging from 1 (Strongly agree) to 5 (Strongly disagree). The score is treated as continuous and a higher score indicates a higher level of peer pressure experienced by individuals. The reliability of the scale is .77 (Sunil, Sani & Goyal, 2011)

Social Media Usage Scale: The social media usage scale developed by Gupta and Bashir (2018) measures a person's general social media activity. The scale consists of 19 items and uses a 5-point Likert scale format, where participants were requested to indicate how frequently they use social media, ranging from 1 (Never) to 5 (always). The following four domains were specified by the author to access the overall usage. Academics (3, 8, 12,13,14,17 & 18). Socialization (1, 2, 6, 7 & 8), Entertainment (11, 15, 16, & 19), and Information, (4, 5 & 10). The score is treated as continuous and a higher score indicates a higher level of peer pressure experienced by individuals. The reliability of the scale is .83 (Gupta & Bashir, 2018).

Conformity Scale: The conformity scale developed by Mehrabian, (2005) measures a person's intentions (ideas, values, and behaviours) related to identifying with others, avoiding conflict, being a follower, and not being a leader. The scale consists of eleven items and uses a nine-point Likert scale format, where participants were requested to indicate how frequently they change their opinion, ranging from 1 to 9 where + 4 (very strong agreement), + 3 (strong agreement), + 2 (moderate agreement), + 1 (slight agreement), 0 (neither agreement nor disagreement), - 1 (slight disagreement), - 2 (moderate disagreement), - 3 (strong disagreement), and - 4 (very strong disagreement). Four items were reversed scores (1, 3, 7, 11). Reverse scoring minimises response biases, particularly in negatively worded items. The overall score was computed by dividing the total number of items by the sum of the positive items and the negative items. The reliability of the scale is .60 (Mehrabian, 2005)

Procedure

The study was carried out as per American Psychological Association guidelines, and the Institutional Review Board approved it (No: PSY-12195-2020). Only those respondents who met the requirements of being active social media users were chosen, and they were asked to respond to a few filter questions before completing the main survey. The following questions were asked: time spent on the internet, frequency of use, number of social networking sites, the favourite site, and purpose for using social media. Participants were invited to express their ideas via self-report measures because all of the study's constructs evaluated the user's perception, that is why this approach was effective. They were told to complete the questionnaire honestly and to respond in the majority of instances, not how they would wish to respond. The survey would take 20 to 25 minutes to complete. In the end, the participants' responses' privacy was guaranteed. It was made sure that the risk of feeling uncomfortable while participating was not anticipated to be higher than what they would typically encounter regularly.

The data was analysed using Smart PLS 3.0. For descriptive analysis, non-parametric statistical tests were used. To measure the reliability of the scales Cronbach alpha test was used. Discriminant validity was accessed through the Hetrotrait-monotrait (HTMT) criterion. For hypothesis testing partial least square technique was used as it was a module-based technique that was used to calculate the proposed predictions, it also enhanced the deviation in dependent factors (Ringle et al., 2015). Thus, the partial least square technique was suitable for analysis as this study examines the direct and indirect relationships between psychological factors (fear of missing out, peer pressure, and need to belong), social media usage, and conformity

RESULTS AND DISCUSSION

Results

Table 1: Cronbach's Alpha Reliability Analysis & Discriminant Validity: Hetrotrait-monotrait (HTMT) Criterion

Scales	Items	Cronbach's alpha	1	2	3	4
1. Conformity	11	0.6				
2. Fear of missing out	10	0.7	0.34			
3. Need to belong	10	0.7	0.31	0.41		
4. Peer pressure	25	0.8	0.30	0.21	0.24	
5. Social media usage	19	0.8	0.39	0.20	0.27	0.23

Source: Developed by the authors, 2023

Note: The acceptable range of the coefficient of alpha is 0.6-0.8 (Klein, 1999). The threshold value <0.9 (Henseler, Ringle & Sarstedt, 2015).

The results indicate that all the scale items have good internal consistency thus further analysis can be done. A coefficient alpha between 0.6 and 0.8 is considered acceptable as it indicates adequate internal consistency for scales in exploratory research, balancing reliability with the number of items and complexity of constructs (Klein, 1999). Discriminant validity analysis indicates that all the instruments have good validity.

Table 2: Descriptive Statistics and Interscale Correlations (N = 471)

Measure	1	2	3	4	5
1. Fear of missing out	–	0.26**	0.01	0.07	-0.04
2. Need to belong		–	-0.07	-0.15**	0.07
3. Peer pressure			–	0.11**	0.09*
4. Social media usage				–	0.13**
5. Conformity					–
Mean	26.38	30.56	60.79	66.12	-0.17
SD	6.76	7.37	13.85	13.40	0.82

Source: Developed by the authors, 2023

Note**: SD= standard deviation, p<0.05*, p<0.01

The correlation analysis showed that FoMo was positively correlated to need to belong (r=.26**) and conformity was positively correlated to social media usage (r=.13**) and peer pressure (r=.09*). Additionally, social media usage was positively correlated to peer pressure (r=.11*) but negatively correlated to need to belong (r=.15**).

Table 3: predictive effects of fear of missing out, peer pressure, and need to belong on social media usage and conformity

Paths	Beta	t-value	p-value	R²-value	Decision
FOMO→ SMU	0.20	2.21	0.028*		Accepted
NTB→ SMU	-0.28	3.27	0.001***	0.12	Accepted
PP→ SMU	0.18	2.36	0.019**		Accepted
SMU→CON	0.40	6.83	0.000***	0.16	Accepted

Source: Developed by the authors, 2023

Note: CON = conformity, FOMO= fear of missing out, NTB= need to belong, PP=peer pressure, SMU= social media usage, p<0.05, p<0.01**, p<0.001****

The results of path analysis showed that fear of missing out and peer pressure positively predicted social media usage respectively (ß = 0.20, p = 0.02), (ß = 0.18, P = 0.01), indicating that a one-unit increase in the independent variable cause a one-unit increase in the dependent variable while the need to belong negatively predicted social media usage (ß = -0.28, p = 0.0010 indicating an inverse relationship. Thus as the need to belong increases the usage of social media decreases.

Figure 2: The structural model along with the r-squared value
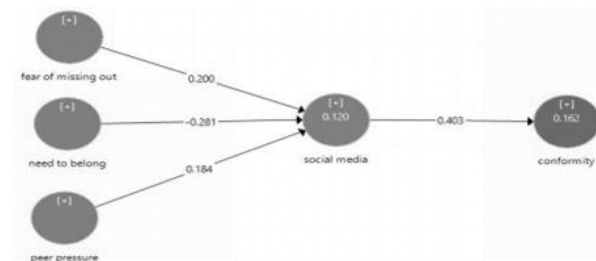
Source: Developed by the authors, 2023

Table 4: Direct and indirect effects of fear of missing out, the need to belong, and peer pressure on conformity mediated by social media usage (N = 471)

Effects	Paths	Beta	S.td	Indirect effects	Total effects	VAF	t-value	p-value	Decision
Direct Effect	FOMO→CON	0.185	0.320				0.579	0.563	
Indirect Effects	FOMO→CON	0.132	0.141				0.937	0.349	Partial mediation
	FOMO→SMU	0.200	0.087	0.063	0.195	0.32 (32%)	2.303	0.022*	
	SMU→CON	0.315	0.085				3.684	0.000***	
Direct Effect	PP→CON	0.403	0.289				1.392	0.165	
Indirect Effects	PP→CON	0.275	0.147				1.863	0.063	No mediation
	PP→SMU	0.184	0.089	0.058	0.333	0.174 (17%)	2.078	0.036*	
	SMU→CON	0.315	0.085				3.684	0.000***	
Direct Effect	NTB→CON	0.163	0.381				0.427	0.673	
Indirect Effects	NTB→CON	0.073	0.125				0.588	0.557	Partial mediation
	NTB→SMU	0.281	0.091	-0.088	-0.162	0.544 (54%)	3.096	0.002*	
	SMU→CON	0.315	0.085				3.684	0.000***	

Source: Developed by the authors, 2023

Note: CON = conformity, FOMO= fear of missing out, NTB= need to belong, PP=peer pressure, SMU= social media usage, p<0.05, p<0.01**, p<0.001***. VAF (variance accounted for) value. (VAF < 0.2, no mediation; 0.2 ≤ VAF ≤ 0.8, partial mediation; VAF > 0.8, full mediation). (Hair et al., 2017)*

The results showed that social media significantly mediates the relationship between fear of missing out and conformity as a value of VAF (variance accounted for) is 0.323 (ß = 0.31, p = 0.001). Similarly, social media significantly mediates the relationship between the need to belong and conformity as the value of VAF is 0.544 (ß = 0.31, p = 0.001) but social media did not mediate the relationship between peer pressure, and conformity as the value of VAF is 0.174.

Figure 3: Structural model of mediation paths
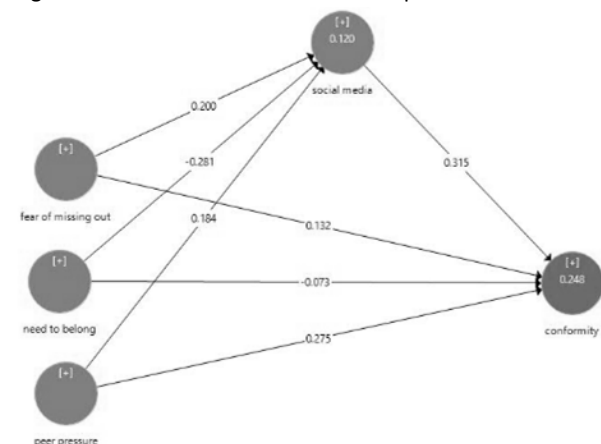
Source: Developed by the authors, 2023

Summary of Key Findings

Table 5: Summary of key findings

Hypothesis	Decision
H1: Fear of missing out, need to belong, and peer pressure are positively related to social media usage	**Partially supported** • Fear of missing out and peer pressure has a positive relationship with social media usage • Need to belong has a negative relationship with social media usage
H2: Social media usage is positively related to conformity	**Supported**
H3: Social media usage will significantly mediate the relationship between fear of missing out, need to belong, peer pressure, and conformity	**Partially supported** • Social media usage significantly mediated the relationship between the fear of missing out, the need to belong and conformity • It did not significantly mediate the relationship between peer pressure and conformity

Source: Developed by the authors, 2023

Discussion

The present study investigated the impact of fear of missing out, peer pressure, and the need to belong on social media usage among young adults. Additionally, it explored how social media fosters conformity and examined the mediating role of social media usage in this relationship. The first hypothesis under investigation examined the relationships between psychological factors such as fear of missing out, peer pressure, need to belong, and social media usage. Results provide partial support for this hypothesis with peer pressure being more strongly associated with social media usage (Sabadini, Rinaldi, & Guazzini, 2022). Given that peer pressure entails a desire to be part of the group, it is understandable that it would have a strong relationship to social media usage compared to fear of missing out. Peer pressure, particularly among adolescents, exerts additional influence by compelling individuals to meet peer expectations (Ku et al., 2013). This pressure encourages users to conform to perceived group norms, with social media serving as a mediator, that intensifies these pressures thereby increasing conformity (Cheung, Chiu, & Lee, 2011).

This finding aligns with previous literature as Wang (2011) found that the desire for peer acceptance often drives individuals to make decisions such as what to post, or which platforms to use. Adolescence is a period marked by heightened peer influence, where peer becomes the spotlight of a person's social life (Palaniswamy & Ponnuswami, 2013). Developmental psychologists also emphasize the importance of social influence on in-group and out-group affiliation during this stage of life (Al-Debei et al., 2014). The need to fit in energizes a person's behaviour to conform to different social norms even when such conformity may be detrimental to their psychological well-being (Ku, Chu, & Tseng, 2013).

Conversely, the need to belong while motivating increased social media usage, can paradoxically diminish uniqueness and drive conformity (Rocheleau & Shaughnessy, 2018). Although social media provides constant gratification, excessive use can have a disabling effect, particularly on young adults. This finding suggests a negative feedback loop between social media usage and the desire to fit in, as prolonged use does not increase belongingness but rather diminishes it (Abrams et al., 2011). Prior research has also identified a connection between social networking site usage and depressive symptoms such as low mood, anxiety, and loneliness (Almohaimmeed, 2019). The study also found that fear of missing out is a weak predictor of social media usage even though it drives people to engage with digital platforms frequently, thereby increasing conformity as they replicate online activities (Przybylski et al., 2013). Individuals experiencing fear of missing out are driven by a need to stay updated on other's activities and may become frustrated if they lose track. This anxiety stemming from a belief that others are having more rewarding experiences prompts them to maintain relationships with peers through social media (Brown & Kuss, 2020).

The second hypothesis posited that social media usage would significantly predict conformity. The result of the present research provided support for this hypothesis as social media usage indeed turned out as a positive predictor of conformity (Egebrark and Ekstorm, 2011). Although there exists a weak correlation (r = 0.13) between conformity and social media usage, there is a relationship, but it is not particularly strong. This finding aligns with previous research, which has shown that social media can influence conformity, but other factors, such as individual personality traits or offline social contexts, may play a more substantial role in shaping conforming behaviours (Wijenayake et al., 2020b). Therefore, further research is needed to explore additional variables that may contribute to this relationship. Conformity is particularly evident on online platforms where users assume that others on the same platform share similar interests (Tussyadiah et al., 2015). To remain part of the online group, individuals often feel compelled to adhere to the platform terms and conditions and align with the behaviour of the referent group. Over time, this conformity becomes permanent and the behaviour continues to show even in the absence of the referent group. (Wijenayake et al., 2020a)

The final hypothesis of the present study posited a mediating role of social media usage between fear of missing out, need to belong, peer pressure, and conformity. The result of the present research provided partial support for this hypothesis as fear of missing out and need to belong demonstrated a significant indirect effect on conformity via social media usage, however, the mediating effect between peer pressure and conformity was non-significant. These findings suggest that while social media is a multifaceted platform, that connects billions of people worldwide and consistently satisfies users' needs, it often does so at the cost of individuality (Ku, Chu, & Tseng, 2013). To achieve gratification, users frequently conform to online norms, which can have significant implications for both physical and mental health (Dogan & Kaya, 2016).

CONCLUSION

The results of this investigation yield both practical and theoretical applications. From a theoretical standpoint, the study enhances the comprehension of the complex interplay between psychological determinants (including the need to belong, fear of missing out, and peer pressure) and social

media usage, showcasing how these factors contribute to conformity behaviours. This research expands upon Social Influence Theory by incorporating psychological motivations within the framework of digital contexts. From a practical perspective, the findings indicate that social media platforms significantly influence behaviour, and targeted interventions, such as digital literacy initiatives and awareness campaigns, may be effective in alleviating the adverse consequences of social media-induced conformity. These findings possess the potential to inform policy-making and strategic initiatives aimed at promoting healthier online behaviour and diminishing peer pressure, particularly among young adults.

Limitations and Suggestions

Some of the limitations of the current study are as follows. Firstly, the use of a cross-sectional survey approach to collect data restricts the ability to establish the causal relationship between the study variables. To better understand how these constructs are related to one another, experimental and long-term investigations are required. Secondly, subjective measures are used to collect data, future research could use objective measures to obtain in-depth information and purposive sampling was used which ensures relevance to the study objectives, but it limits generalizability as the sample may not fully represent all young adults in Pakistan. Thirdly, social media use is treated holistically in this study, but future research might concentrate on particular social networking platforms like Instagram, Facebook, Snapchat, etc. Lastly, to obtain an accurate response the phenomena of conformity should be studied in the experimental setting because participants mostly fake it. Lastly, some participants' psychological distress can be caused by the reflection on social media behaviours or conformity-related issues. Additionally, they also feel pressured to answer in ways they perceive as socially acceptable, which may impact the authenticity of the responses. It is important to ensure that participants feel comfortable and offer resources for addressing any emotional discomfort that may arise during participation.

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A Study on the Effectiveness of Integrating Chinese Culture into Chinese Language Instruction: A Case Study from an Activity Theory Perspective

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Abstract

There is unprecedented growth in the teaching and learning of the Chinese language across the world. From the perspective of second language learners, effective language acquisition and expertise in the target language depends on the efficiency of the language acquisition process and the successful integration into the selected foreign language. As per the existing knowledge, the success of second language acquisition depends on the effective integration of culture into the teaching-learning process. The absence of a host language culture can isolate the language learner from acquiring the authentic scope and employment of the foreign language. Therefore, this study focuses on identifying challenges in integrating Chinese culture into foreign language acquisition at prominent Sri Lankan universities that offer specialised Chinese language degree programs. Furthermore, the study uses Activity theory in the Chinese cultural integration to get effective results on the research phenomena. Structured Surveys were conducted focusing on 60 students enrolled in both special and general Chinese language degree programs at the Universities of Kelaniya and Sabaragamuwa in Sri Lanka. Additionally, interviews were conducted with two groups: 10 Chinese language learners from both universities and 2 local lecturers, along with 2 native Chinese lecturers responsible for delivering lectures on the 'Chinese Culture' subject course at these universities. As per the major findings of the study, there were many reasons that resulted in the gap in the integration of Chinese culture into language acquisition. These reasons are the absence of a standardised curriculum, unclear scope and depth of course content, unstructured teaching methodologies, and inadequacies in the professionalism and applicability of culture-related teaching materials. In response to these challenges, the study offers recommendations, including curriculum and course content improvements related to Chinese culture, optimisation of teaching methods, effective utilisation of teaching materials, enhancement of teaching approaches, and the strengthening of lecturers' cultural knowledge.

Keywords: Chinese, Chinese Culture, Language Instruction, Undergraduates

INTRODUCTION

In the global linguistic spectrum, the Chinese language acquires significance as a language spoken by a vast range of communities. This idea is reclaimed by Yang (2020) in stating the wide popularity and enthusiasm of individuals to acquire the Chinese language. According to Ganehan (2020), China's Expansive Belt and Road Initiative (BRI) has served as an encouragement for Chinese outbound investment throughout Asia, including Sri Lanka. The BRI is a massive international investment and development initiative by China that aims to improve commerce and infrastructure networks throughout Asia and beyond. As part of Asia, Sri Lanka has profited from Chinese investments because of its advantageous geographic location. Consequently, as the ability to speak and comprehend Chinese becomes more and more important for trade, business, and diplomacy, there is a growing interest in learning the language and its culture. The teaching and learning of Chinese has advanced in recent years due to China's global impact and overall national strength. Teaching and learning Chinese has advanced in the Sri Lankan educational system in recent years due to China's global impact and overall national strength (Kandambi, 2020).

Chinese language learners from a wide range of nations are dedicated to teaching the language in their native countries. The ability of language to facilitate cross-cultural communication is well established. According to Gumperz (1982), Language is not merely a means of expression; it is a reflection of cultural values, norms, and identity. In fact, a complex interaction of cultural settings and societal dynamics shapes the developmental trajectory of language, which is defined as the acquisition and development of communicative skills and linguistic competence (Yusupov, 2023). This implies the function of Chinese in intercultural

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communication and understanding. In this context, it's critical to pinpoint the difficulties and successful methods utilised by Chinese language learners from diverse linguistic origins. In this regard, it is significant to identify the geographical and socio-economic background of China. In addition to the language acquisition process, a second language learner's ability to acquire the culture of the target language significantly influences the effectiveness of acquiring and learning it. The ability to speak effectively and naturally in the target language is also frequently the ultimate goal of learning a second language. The awareness of the cultural context of the target language is also necessary for effective language utilisation. According to this viewpoint, learning Chinese as a second or foreign language involves dealing with the collision, exchange, understanding, and mutual understanding between the learner's own culture and the Chinese culture along with developing communication skills in Chinese.

In recent years, the number of people who want to learn Chinese and Chinese culture has been steadily increasing, and the momentum of Chinese language education is developing well nationwide. However, as a country in the non-Chinese-character cultural sphere, the primary language spoken in Sri Lanka, Sinhala, which is an inflected language, belongs to the Indo-European language family and the Indo-Aryan group. This makes it significantly different from Chinese, which is an isolating language. In terms of culture, ancient Sri Lankan culture originated from Indian culture, and Sri Lanka's history, culture, customs, and languages have been influenced by the North Indian culture, with relatively less influence from the Chinese culture. Therefore, Sri Lankan learners of Chinese face significant challenges in learning the language, particularly in terms of phonetics, vocabulary, grammar, Chinese characters, and cultural aspects (Yang Kai,2020).

However, many Sri Lankan students are currently studying Chinese in order to work as Chinese teachers, tour guides, or employees of Chinese-invested businesses, according to recent surveys. The primary objectives of the majority of Chinese learners in Sri Lanka are the first two of these. Since Chinese people are the target audience for these related sectors and more and more students are interested in learning the language, it is necessary for students to understand the Chinese culture in addition to the language. However, at the moment, only honours students are allowed to enrol in the 'Chinese Culture' course offered by the program in certain Sri Lankan universities that offer Chinese programs; regular degree candidates are not permitted to attend advanced culture courses. Students from Sri Lanka, in particular, those who are learning in a non-target language setting, are typically limited to learning and practising Chinese in the classroom. Furthermore, students further from the capital hardly ever have access to such opportunities to learn the culture, with the exception of a small number of university students in Colombo, which is close to the capital, who can take part in Chinese cultural and festival activities. Learning and comprehending the Chinese culture is made much more challenging for many students who are unable to locate a language practice setting outside of the classroom. These students also feel that they have to understand and absorb Chinese culture in order to fulfil their future professional aspirations in the country. Thus, addressing this practical learning

requirement and offering appropriate instruction to Sri Lankan students becomes a crucial issue impacting the accomplishment of many learning objectives.

The present work will examine the implementation of Chinese cultural education at two Sri Lankan universities in response to the mentioned circumstance, drawing on the writer's own experiences with learning and teaching Chinese. The study intends to comprehend the features and current problems of Chinese cultural education at these universities by looking at the textbooks, teaching strategies, course structure, and content of the 'Chinese Culture' courses. The Activity theory will be used to analyse the causes of these problems and offer related answers and recommendations in the hopes of offering helpful resources to advance Chinese culture courses at Sri Lankan universities.

Objectives of the Study

Theoretical Significance: There were significant studies conducted on the teaching-learning process of the Chinese culture in Chinese language acquisition in Sri Lankan universities. Many studies focused on the curriculum development and teaching methodologies used in Chinese language instruction. However, this study depicts a broader perspective in finding various problems and challenges encountered in the teaching of the Chinese language and addresses a broader spectrum by emphasising the content of the subject, study materials and teaching materials with selected teaching methodologies employed specifically to assimilate Sri Lankan undergraduates into the Chinese culture.

Practical Significance: It is scientifically proven that second–language acquirers undergo challenges and difficulties in acquiring a language. It requires an active teaching-learning process. A similar notion can be identified in relation to the cultural integration of the Chinese language into the language acquisition process. As the process is difficult and effective methodologies are not implemented to mitigate the concern, it directly affects to demotivate students in engaging with the language. Therefore, this study seeks to explore teaching strategies and methodologies for the effective integration of culture and language proficiency in Sri Lanka. On the other hand, this study conducts a pragmatic survey on the current condition of the Chinese language contexts in Sri Lankan universities that has the capability to provide a deeper insight into the situation.

LITERATURE REVIEW

The Correlation Between Culture and Language Teaching and Learning

It is obvious that foreign language and teaching which has grown to a significant scope since the onset of international relations has gained immense popularity and significance at present due to global relevance (Celik & Yıldız, 2019). Owing to the benefits attributed to an individual by the acquisition of a foreign language, it is argued that this feature and acquisition has a tendency to enable the person to better understand the world, overcome cultural and linguistic barriers and have a profession in this scope (Odabaşı, 1997). Moreover, foreign language acquisition gives the possibility to elevate one's knowledge to a higher level and to access a vast arena of the pool of knowledge with the cultural

accumulation of participants in the respective language community.

The correlation between language and culture with each influencing the other has a deep symbolic rapport in the global set-up. Language epitomises a holistic view of culture as language articulates the culture of the speaker's mindset. On the other hand, culture depicts language and further economic, religious and philosophical systems of a speech community (Kuo & Lai). As per Sun (2013) language is recognised as the primary source of cultural expression, beliefs, ethos and norms of a community. Similarly, language is deeply influenced by culture; without culture, language would be like water without a source or a tree without roots (Sun,2013). Teaching foreign languages requires a symbiotic relationship between language and culture because learning a new language involves more than simply mastering the language; it also entails comprehending the traditions, values, and customs of a linguistic community, which facilitates effective communication with its speakers.

According to Brown (2007), language and culture are inseparable with language both reflecting and influencing cultural development. According to Brown (2000), "a language is a part of a culture, and a culture is a part of a language; the two are intricately interwoven so that one cannot separate the two without losing the significance of either language or culture" (p. 177). This argument is supported by other academics. Since the forms and uses of language reflect the cultural values of the culture in which it is spoken, linguists and anthropologists are well acquainted with this link. Krasner (1999) indicates that cultural awareness is equally important as linguistic ability in ensuring language competency.

In addition to that, Kramsch (2001) depicts the relationship between culture and language by proposing that culture and language are inseparable and constitute a single universe or domain of experience. In this view, the significance of cultural integration in language teaching is highlighted as an integral aspect as these two cannot be isolated in the effective process of foreign language acquisition. This perspective is widely accepted in foreign language teaching literature (e.g., Kramsch, 1993; Méndez, 2003; Guillén, 2005; Holme, 1999). For instance, Nida (2007) argues further that language and culture are amalgamated; which eventually makes language teaching and cultural awareness of a speech community a fundamental component of language instruction. Furthermore, learning and studying a foreign culture is crucial for cross-cultural communication, while equally reflecting on one's own culture to better comprehend how one's own system works. According to Wang Li Fei (2000), this sort of self-awareness can promote personal development and offer insightful information.

The significance of comprehending cultural dynamics and their influence on the successful acquisition of foreign languages was highlighted by research conducted in the 1980s (Canale & Swain, 1980; Cargill, 1987; Byram, 1989). Translation between languages is consequently not always simple because of the disparities in cultural contexts, which means that language learning is intrinsically located within a cultural framework.

Factors Affecting Culture in Foreign Language Teaching

Due to the close correlation between language and culture, students undergo difficulties to understand a language while also understanding its cultural context. Stockwell (2018) emphasises that meaning is constructed and interpreted through language in a cultural context. Cultural standards have a significant influence on factors such as word choice and appropriate behaviour in particular contexts. Furthermore, when employed outside of their cultural context, linguistically correct sentences have a possibility to cause confusion. These problems highlight how important it is to include cultural understanding in language instruction.

It is obvious that many language instructors acknowledge the significance of the respective culture in language teaching yet deviate from effectively inculcating cultural norms of foreign languages through effective teaching strategies. As per Atay (2005), while language teachers are aware of the correlation between language and culture, these instructors often feel unprepared or lack cultural knowledge about the target language. Similarly, Kahraman's (2016) study revealed that despite instructors' reported eagerness to teach culture, they spent less time doing so than teaching language because of issues including overloaded curriculum, time constraints, and teaching requirements that were mostly exam-focused. Three groups of teachers were identified by Yang and Chen (2014, 2016) based on their attitudes towards teaching culture: those who think it is unnecessary to teach culture, those who think it is secondary to teaching grammar, and those who think it is crucial for providing meaningful context. Due to a lack of understanding of its importance, teachers in the first group frequently leave out cultural elements from their lessons and evaluations.

Furthermore, many studies upsized that cultural integration in language classrooms begins with the attitudes of teachers. As per Stockwell (2018), the necessity of language instructors to have an obvious understanding of cultural elements is evident not only in focusing on the mechanics of the language but also in raising students' awareness of the inseparable link between language and culture. By integrating culture into language teaching, teachers help students develop a more holistic understanding of the language, enhancing their overall proficiency and ability to engage meaningfully with speakers of the target language.

Consequently, another major concern related to cultural integration in language instruction is access to teaching materials. According to Lu Jianji's (1990) study, teaching materials are classified under two categories;

    1) Culture-centric materials and
    2) Language-centric materials.

In culture-centric materials, all teaching materials focus on cultural projects which are applicable to advanced learners while language-centric materials are integrated with cultural projects that are more aligned with beginners. The integration of cultural elements into different kinds of Chinese language teaching materials, such as comprehensive and sub-skill teaching resources, was examined by Han Ming (2011). Similarly, nine cultural textbooks were assessed by Zhou Xiaobing and associates

(2010) based on their instructional designs, content selection, and learning objectives. They found that some textbooks lacked clearly defined learning objectives or detailed analysis of learners' language proficiency levels, limiting their effectiveness in teaching culture. Sri Lankan universities usually use the textbooks named "跟我学汉语"

（Learn Chinese with Me）and "新使用汉语课本" （New Practical Chinese Reader), and both these books are published in China; their examples, setting and everything else is based in China. The lack of time prevents students from understanding the entire textbook because all of the passages and content involve cultural implications that the teacher has to clarify (Sammanie, 2018). According to Byrd (2014), language instructors frequently find it difficult to locate cultural resources for their students, which could be one reason for this. According to Kahraman (2016), teachers hardly ever offer extra resources for teaching culture; instead, the textbook is the most frequently used resource.

The growing interest in foreign language teaching across the world puts immense pressure on educators to achieve learning objectives and desired outcomes. Traditional teaching methods and teaching approaches such as Grammar translation method, Communicative teaching methods and functional language teaching were utilised as major teaching mechanisms over decades. Yet these approaches were unable to fulfil the objectives and goals of foreign language instruction and cultural education (Celik & Yıldız, 2019).

Multimedia teaching can improve student engagement by using dynamic resources including audio, video, and interactive content to create authentic cultural contexts. Multimedia provides access to real resources like interviews and virtual tours and facilitates multisensory learning, accommodating different learning styles. However, because language education systems continue to mostly rely on conventional procedures, Sammanie (2018) discovered that the existing use of multimedia tools in universities does not adequately correspond to the academic needs of teachers. Robinson and Nocon (1996) also underlined the value of immersion in the target culture for genuine cultural learning, underscoring the shortcomings of traditional educational settings in promoting cultural comprehension.

Chinese Language Teaching in Sri Lanka

In Sri Lankan universities, much emphasis and significance is given by Chinese lecturers to improve teaching standards which has increased issues and concerns related to Chinese language instruction in Sri Lanka. Chinese teaching seminars are held annually by Sri Lankan universities in addition to Master's degree courses in the subject. Research on Chinese language instruction in high schools and universities accounts for the great majority of exceptional Master's degree theses, Doctoral theses, international research seminar papers, and Chinese language research-related research papers published in other publications that can be retrieved. As an example, the article 'The Current Situation, Problems and Prospects of Chinese Teaching and Promotion in Sri Lanka' published by Yang Gang (2012) in Southeast Asia and South Asia Studies (Part 2) emphasises the necessity to increase the number of language instructors and teachers in Confucius Institute and Confucius classrooms in Sri Lanka that resulted in unstable students' teams and the scarcity of

local teaching materials. Moreover, Kumari's (2015) study on current problems in Chinese teaching in Sri Lankan universities focused on the University of Kelaniya as the research sample manifested current problems and concerns in Chinese language instruction in terms of teachers, students, teaching materials, teaching methods and curriculum settings.

The research gap that results from this context concerns the development and successful incorporation of cultural teaching resources into Chinese language education. Few studies have thoroughly examined the creation and incorporation of culturally relevant materials into the Chinese language curriculum at Sri Lankan universities, despite the fact that previous research has mentioned the significance of culture in foreign language instruction and some studies have addressed problems with Chinese language instruction in Sri Lanka. An innovative approach to address the particular requirements of this particular language instructional setting is to place a strong emphasis on the development and implementation of culturally-enriched resources.

Theoretical Framework

Activity theory is a philosophical framework for studying the interactive processes between individuals and their external environments, developed based on the dialectical materialism of Marx and Engels. According to Xiong Shuhui (2010), scholars such as Vygotsky and Leont'ev carried out research and improved study on the Activity theory. Engeström (1987) carried out further research and development on the subject of Activity theory. He introduced a new 'triangular model' that incorporates the influence of collective activities. The new 'triangular model' consists of seven elements, namely: subject, object, tools, rules, community, division of labour, and outcomes.

Figure 1: Second-generation activity theory
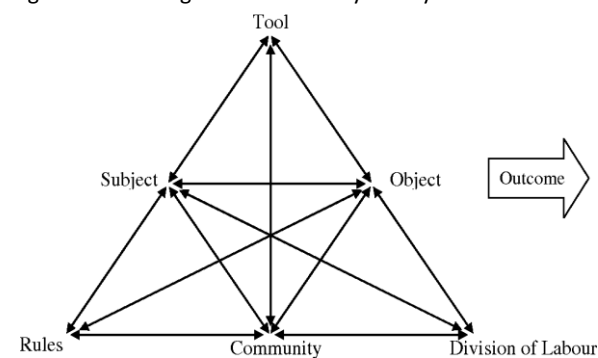
Source: Engestroöm, 1987

According to the triangular model, the subject, object, and tools are located in the upper half of the model, which explains the way the subject applies specific tools to the object in order to transform them into results. Yet rather than occurring in a vacuum, this process happens in a sociocultural setting that is impacted by community, regulations, and the division of labour (Li Lin, 2016).

Activity theory, developed by Vygotsky, serves as the theoretical foundation for this study. According to Yang Luxin (2016), activity theory uses 'activity' as its logical starting point and as one of its primary categories to investigate and clarify psychological theories of human psychological development. According to Vygotsky (1978), in order to accomplish the desired objectives, the subject

and the object use either psychological (such as experience, language, etc.) or physical (such as hammers, sickles, etc.) approaches. The second generation of activity theory was formed by Leont'ev (1981) and Engestrom (1987), who expanded on the idea that the subject is always in a community with social people and is subject to rules and division of labour constraints or supports (see Figure 1). Additionally, as "the capacity for socially and culturally mediated action" (Ahearn, 2001:112), agency plays a crucial role in resolving contradictions among the various elements within an activity system (Engeström, 1987).

The application of activity theory to investigate how subjects connect objects with community assistance through the use of intermediary resources is evident. It also enables one to expand beyond personal worries by problems undergo along the acquisition process (Yang, 2022). As active participants in this study, Chinese language learners at two institutions actively used language learning resources and other intermediary aids while taking Chinese culture classes. In the community that has been established with lecturers, they followed the guidelines to finish the division of labour and transfer the goal of their efforts to achieve the intended outcomes. The absence of any component in the activity system, such as inappropriate teaching techniques, culturally insensitive teachers, or inappropriate learning materials, could, of course, have an impact on the teaching-learning process.

MATERIALS AND METHODS

In order to integrate qualitative and quantitative research approaches, this study uses a sequential explanatory mixed method design. A mixed strategy was employed to obtain a comprehensive perspective on the research scope.

Classroom Observations

Here, researchers attended Chinese Culture courses at the University of Sabaragamuwa and the University of Kelaniya in Sri Lanka, each lasting for 15 weeks. These language courses were conducted on a weekly basis, in two–hour sessions. By the end of the semester, 30 sessions were completed. In order to get an authentic experience and to refer to collected data later, these lecturers were recorded with comprehensive notes and specific details were documented. Furthermore, the Observation Method was employed to explore the content of the course, teaching methods, differentiated learning styles and the effectiveness of the teaching-learning process. Then classroom observation was utilised in the structuring of questionnaires and interviews.

Interviews

Interviews were conducted with 8 randomly selected students from both universities. These students have been exposed to the language in both Sri Lanka and China. In addition to that, a semi-structured interview was conducted with 4 Chinese language lecturers from both universities who are specialised in teaching Chinese culture.

Lecturer Interviews: The researcher selected four lecturers who deliver 'Chinese Culture' courses at the Universities of Sabaragamuwa and Kelaniya as resources for this section. Both Chinese and Sri Lankan faculty members were represented among the lecturers who were interviewed. One of the primary sources of data for this study is a Zoom interview with each lecturer (a total of approximately 4500 words of transcribed text). Interviews with local instructors were conducted in Sinhala, whereas interviews with Chinese lecturers were conducted in Chinese. The interview was fully recorded by the researcher, who also transcribed the transcripts and related information. The present study employed a combination of inductive and deductive methodologies for thematic coding analysis, and data collection and analysis were conducted concurrently (Hood, 2009).

Learner Interviews: In this segment, interviews were conducted with two specific categories of students:

1. Four Sri Lankan university students who were enrolled in 'Chinese Culture' courses at the mentioned universities.
2. Students who had experience studying in both China and Sri Lanka, offering a unique perspective on the subject matter.

Questionnaires

The structured questionnaire was given to 60 Chinese language students at the University of Kelaniya and Sabaragamuwa, ages 20 to 25, based on the results of classroom observations and interviews. These students, who are in their second to fourth years of study, represent both general and particular Chinese degree programs. Twenty questions in all, the questionnaire was created with a practical emphasis on elements of learning Chinese and assimilating into the culture.

The study uses a sequential exploratory design, which begins with the gathering and analysis of qualitative data and then moves into a quantitative phase that applies the results to a broader population. In order to understand the complex connection between cultural exposure and language competency, this method was selected since it offers both deep contextual understanding and measurable patterns.

RESULTS AND DISCUSSION

Data Analysis and Interpretation

Structured Interviews with Lecturers

In advance of extracting data from lecturers at Sabaragamuwa and Kelaniya Universities, the researcher examines the data several times in order to modify relevant themes. During this process, the second generation of Activity theory was used as an analytical framework to merge related themes, resulting in two theme codes and three sub-themes (see Table 1). The first theme code, 'intermediary tools,' focuses on insufficient or inadequate intermediary resources, such as 'teaching.' There are two sub-theme codes: 'There is a lack of unified syllabus in terms of curriculum and the scope and depth of teaching content are not clear enough' and 'The professionalism and applicability of cultural textbooks need to be improved.' 'Rules and Division of Labour' is the second theme code, and it focuses on lecturers' low performance at work, including 'Neglecting important teaching content,' and the inability to fulfil their teaching responsibilities.

Table 1: Data encoding and examples (Lecturers) Universities of Sabaragamuwa & Kelaniya

Theme coding	Coding unit	Selected results
Intermediary tool	There is a lack of unified syllabus in terms of curriculum and the scope and depth of course teaching content are not clear enough.	"I'm not very satisfied with the curriculum of cultural courses because the textbooks currently used for cultural courses are often compiled by the lecturers themselves, mainly focusing on contemporary Chinese culture, with very little emphasis on Chinese history and other subjects. It's also difficult to find cultural materials that are suitable for students' levels." (Kelaniya)

"The recommended reading list in the curriculum mostly consists of outdated and less relevant content, with limited utility and assistance for students. If we want students to understand contemporary cultural content, lecturers must search for a larger number of relevant materials separately. Additionally, due to the limitations in students' Chinese language proficiency, it is also challenging for lecturers to make specific content adjustments when students cannot express their thoughts and needs effectively. (Sabaragamuwa) |
| | The professionalism and applicability of cultural textbooks need to be improved | "I feel that the content of the textbooks currently in use is quite challenging and as a lecturer, I also find it difficult to understand. So, it would be better if we could have localized cultural materials or materials that compare the similarities and differences between Chinese and Sri Lankan cultures." (Kelaniya)

"Because these textbooks are designed for students from all countries, lecturers need to re-prepare their lessons based on the cultural characteristics of Sri Lanka, the characteristics of the students, their areas of interest and their actual needs, among other factors. As a Chinese culture course lecturer, preparing lessons requires searching for a lot of materials." (Sabaragamuwa) |
| Rules and Division of Labor. | Neglecting important teaching content | "As there is a certain relationship between students' learning interests and their level of understanding, lecturers generally do not choose topics that are too difficult. However, among some of the more challenging topics, there are important cultural content included and local lecturers will still touch upon these contents. Currently at Kelaniya University, there are only two local lecturers who have a relatively good understanding of cultural knowledge, while other local lecturers have relatively limited knowledge of culture."(Kelaniya)

Students enjoy learning about Chinese cuisine culture, art, festivals, Chinese songs, Chinese films and Chinese literature but they do not want to study content that is more complex than their current Chinese language proficiency level. (Sabaragamuwa) |

Source: Developed by author,2024

Structured Interviews with Students

Interviews with the students from both universities are coded as given below (see Table 2). The first theme code "Rules and Division of Labor" focuses on inappropriate or imperfect rules and division of labour, including "learning." There are three sub-theme codes: " Ignoring students' Chinese Level", "insufficient lesson preparation by the lecturer" and "Not providing feedback."

Table 2: Data encoding and examples (students) Universities of Sabaragamuwa & Kelaniya

Theme coding	Coding unit	Selected results
Rules and Division of Labour	Ignoring students' Chinese Level	Most of the information in the cultural class is not understood as our current Chinese language proficiency is not high. Therefore, when Chinese lecturers explain the course materials, most of the content is not comprehensible. Most of the content in the cultural class materials looks unfamiliar and almost all the words are "new vocabulary."
	insufficient lesson preparation by the lecturer	"The lecturer sends us the class presentation a few hours or a day before the lecture and sometimes we don't have enough time to preview it, so we can't keep understanding the content during the class."
	Not providing feedback	"Although the lecturer often mentioned about improving cultural understanding, they haven't provided any specific methods. Additionally, while homework is assigned after class, we only receive checked assignments towards the end of the semester. This is affecting our learning."

Source: Developed by author,2024

Structured Interviews Conducted with Lecturers

Through the interviews conducted with lecturers from both Sabaragamuwa University and Kelaniya University, and the subsequent analysis of the extracted data, a systematic coding process was applied to identify key themes and strategies. This process resulted in the development of the first thematic code, 'Subjective Agency,' which focuses on the proactive strategies that can be adopted by both students and lecturers to improve teaching and learning outcomes. The category of Subjective Agency highlights actions that students can take to enhance their learning experience. Three specific action codes were identified within this category: establishing explicit learning goals to provide direction and clarity in their studies, adjusting their mind set to foster resilience and a positive attitude toward challenges, and seeking tutoring and engaging in self-study as methods to reinforce understanding and independence.

On the other hand, 'Labor Agency' captures the strategies that lecturers can employ to optimize their teaching practices. This category includes four action codes: defining clear teaching objectives to ensure that learning goals are well-communicated, selecting appropriate teaching materials to align with curriculum requirements and student needs, diversifying teaching methodologies to address

various learning styles, and strengthening their cultural knowledge foundation to better connect with students in diverse educational contexts. Together, these codes and sub-themes provide a structured framework for understanding how both students and lecturers can actively contribute to fostering effective educational practices. This dual perspective underscores the collaborative nature of the teaching-learning process.

Table 3: Data encoding and examples (lecturers & students) Universities of Sabaragamuwa & Kelaniya

Theme coding	Coding unit	Selected results
Subjective Agency	The explicit learning goal	"I must obtain my degree and pass the Chinese Culture subject exam."
	Adjusting mindset	"This is my own choice, so I will proceed with determination and I can't give it up."
	Seeking tutoring and self-study.	"I've not only hired a tutor but also self-study."
Labor Agency	Make clear teaching goals	"When formulating teaching objectives, it is necessary to take students' learning goals and interests into account and it is also important to consider the standards of the cultural course."
	Selecting teaching materials appropriately	"Selecting appropriate teaching materials for Chinese culture courses and recommending experienced Chinese language instructors in Sri Lanka to form a team and collaborate in developing culturally relevant course materials for Sri Lankan students."
	Diversifying teaching methods	"Enriching the teaching methods for Chinese culture courses is essential and incorporating modern teaching methods can be very effective."
	Strengthening teachers' cultural knowledge foundation	"As most of the local lecturers did not get their degrees from Chinese universities, they have a very limited understanding of Chinese culture. Similarly, when Chinese lecturers deliver lectures, they use English as the classroom language but due to their pronunciation and English proficiency issues among Chinese lecturers, students may not effectively convey the content of the Chinese culture subject. This sometimes leads to cross-cultural communication problems. To address these challenges, it would be beneficial to implement the following strategies: Teacher Training programs, Collaborative Teaching, Resource Sharing and Cultural Education etc."

Source: Developed by author,2024

Questionnaires were given to 30 Chinese language learners from each university, who were between the ages of 20 and 25, in order in order to comprehend the educational setting of Chinese cultural courses among students at the Universities of Sabaragamuwa and Kelaniya. This questionnaire was created with the unique conditions of teaching Chinese in Sri Lankan universities in mind, drawing from an earlier study by Peng (2020). There were twenty-nine questions in all on the questionnaire survey (specific content provided below).

Sabaragamuwa University of Sri Lanka

The analysis of the "Chinese Culture" course at the University of Sabaragamuwa in Sri Lanka, based on a combination of classroom observations and interviews, has yielded several important insights. First, the University of Sabaragamuwa offers a four-year Honors Bachelor's degree program with mandatory "Chinese Culture" courses. The Chinese culture courses are integrated into the curriculum in the second, third, and fourth years for Honors students. Second, the Confucius Institute at Sabaragamuwa University, staffed by dedicated Chinese teachers, contributes significantly to teaching the Chinese culture. The primary teaching material is "Common Knowledge about Chinese Culture," supplemented with online resources.

However, students find this content challenging, often requiring more class time for explanation. Teaching methods, such as translation and lectures, have not evolved to reflect modern approaches. Additionally, the absence of a standardised teaching syllabus and suitable cultural course materials poses a significant challenge for the "Chinese Culture" courses at Sabaragamuwa University. This absence makes it difficult to define clear teaching objectives and match instructional content with student proficiency levels. Moreover, interviews with lecturers at Sabaragamuwa University have revealed a substantial challenge within the "Chinese Culture" courses. Specifically, the absence of a standardised teaching syllabus and the unavailability of appropriate cultural course materials hinder the definition of clear teaching objectives. This gap also prevents the effective alignment of instructional content with the proficiency levels of the students.

University of Kelaniya

The University of Kelaniya is one of the earliest universities in Sri Lanka that offer Chinese language degree programs and the Confucius Centre of the university has played a key role in this regard. It has created a conducive learning environment for Chinese language learners at the university. The University of Kelaniya offers two types of degree programs: a four-year Bachelor of Arts in Business and academic Chinese degree and a three-year General Bachelor's degree. It is obvious that both programs offer a 'Chinese culture course' as a mandatory language specification for both special and general degree followers. Moreover, a noticeable similarity can be identified in the course materials of these courses in both universities. However, the lecturers at Kelaniya often rely on materials they have compiled themselves, sometimes using the content from textbooks like 'New Practical Chinese Reader' and 'Common Knowledge about Chinese Culture'.

Yet, for students with lower Chinese language proficiency, the content of these textbooks may not be entirely suitable. Furthermore, the use of teaching methods and strategies by both local and Chinese lecturers can be identified as stereotypical language instruction methodologies such as translation, visual aids, and comparative analysis. Through

interviews with lecturers of the University of Kelaniya, it is evident that these instructors also perceive certain issues with the current curriculum for cultural courses, which deviate from adequately catering to the needs of students and bridging the gap between learner requirements and professional development needs required in the global professional scope. Based on the information supplied, the survey results from the students' questionnaires were analysed.

Findings of the Questionnaire Survey

The questionnaire was designed to understand the learning experiences of students in Chinese culture courses at Sabaragamuwa and Kelaniya Universities. The following charts summarize specific statistical charts and results for each question in the learner survey.

Figure 2: Perceived difficulty of learning Chinese culture at two universities

Q.1 What do you think about the content of the subject "Chinese Culture"?

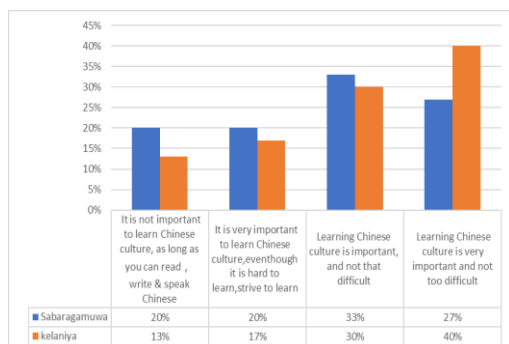|	Very easy	easy	Difficult	Very difficult
Sabaragamuwa	0%	31%	47%	22%
Kelaniya	0%	37%	57%	7%
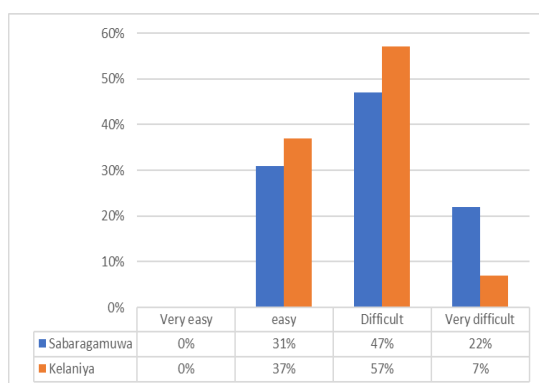
Source: Developed by author,2024

At Sabaragamuwa University, 47% of the respondents stated that students considered the categorisation of the content as 'difficult.' 31% of the students claimed it was 'easy,' while 22% stated it was "very difficult." None of the learners thought it was 'very easy.'

According to the University of Kelaniya survey, 57% of respondents chose 'finding learning Chinese culture "difficult"' as the primary concern. The cultural course was regarded as 'easy' by 37% of the respondents. 7% of students also said it was extremely difficult, and nobody selected the option that 'learning Chinese culture is very easy'.

Figure 3: Students' attitudes towards studying Chinese culture at the two universities

Q.2 What is your attitude towards studying the subject of "Chinese culture"?

	It is not important to learn Chinese culture, as long as you can read , write & speak Chinese	It is very important to learn Chinese culture, eventhough it is hard to learn,strive to learn	Learning Chinese culture is important, and not that difficult	Learning Chinese culture is very important and not too difficult
Sabaragamuwa	20%	20%	33%	27%
kelaniya	13%	17%	30%	40%

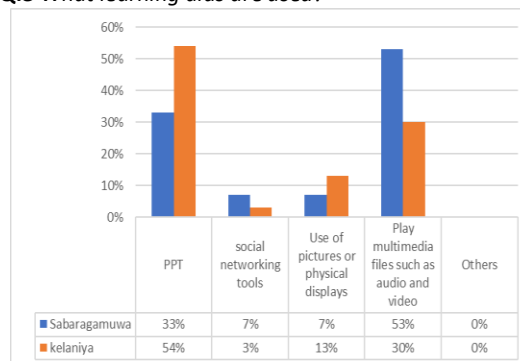Source: Developed by author,2024

As per the survey, the most common response to the question about students' "attitude towards studying the subject of the Chinese culture" at the University of Sabaragamuwa was "Learning the Chinese culture is important and not that difficult," which was chosen by 33% of the students. "Learning the Chinese culture is very important and not too difficult" was chosen by 27% of the students, and "It is not important to learn the Chinese culture as long as you can read, write, and speak Chinese" and "It is very important to learn the Chinese culture, even though it is hard to learn, strive to learn" was chosen by 20% of the students.

On the other hand, the University of Kelaniya students' survey indicated the following perspectives on studying "The Chinese Culture": 30% of students selected "Learning the Chinese culture is important and not that difficult," while 40% of students selected "Learning the Chinese culture is very important and not too difficult." 17% of students selected "It is very important to learn the Chinese culture even though it is hard to learn, and needs extra effort to learn," and 13% chose "It is not important to learn the Chinese culture as long as you can read, write, and speak Chinese."

Based on the statistical results of these survey questions, it appears that the majority of students at the University of Kelaniya had already recognised the importance of learning the culture. In contrast, students at the University of Sabaragamuwa seem to find Chinese culture difficult and therefore, less desirable to learn. This attitude among the University of Sabaragamuwa students has the tendency to affect the effectiveness of teaching. It is essential to highlight the significance of cultural integration into language proficiency as concurrent concepts and considerations in foreign language instruction. In second language acquisition, the importance of acquiring pronunciation, vocabulary, grammar and writing systems is undisputed. However, what is often overlooked by learners is the development of cultural competence which includes shared beliefs among members of language communities from different thought systems, conveyed through language (Bentahila & Davies, 1989). This reinforces the idea that language learning should not neglect the study of relevant cultures.

Figure 4: Teaching methods used by lecturers for Chinese culture courses at the two universities

Q.3 What learning aids are used?

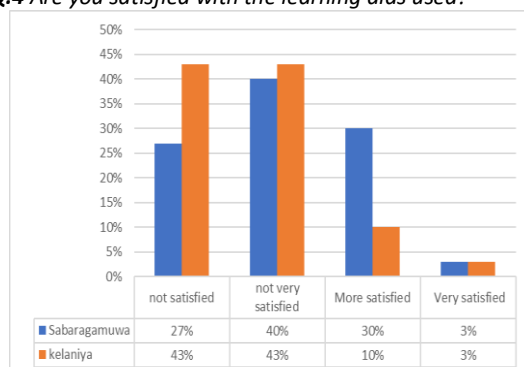|	PPT	social networking tools	Use of pictures or physical displays	Play multimedia files such as audio and video	Others
Sabaragamuwa	33%	7%	7%	53%	0%
kelaniya	54%	3%	13%	30%	0%

Source: Developed by author,2024

The responses related to teaching materials grants importance in this study. 53% of undergraduates from Sabaragamuwa University stated that multimedia files such

as audio and videos were the commonly used teaching materials. 33% of students stated that the employment of PowerPoint slides (PPT) and both 'Social network tools' and 'Use of pictures or physical displays' options were chosen by 7% each. There were no students who chose 'other' options.

Moreover, undergraduates of the University of Kelaniya stated a similar notion related to teaching materials. 54% of undergraduates selected the use of PowerPoint slides as the major source of teaching materials while 30% of students chose the use of multimedia files as the source. On the other hand, 13% Chose 'Use of pictures or physical displays'. A very small percentage of 3% selected the option 'Social network tools'. By comparing these survey results, it's evident that lecturers in both universities frequently use methods such as playing multimedia files and using PowerPoint (PPT) presentations in the Chinese culture subject. Lecturers also make use of videos and images. However, using social network tools is less common.

Teaching the Chinese culture effectively often requires a variety of learning tools and resources to engage students and provide them with a comprehensive understanding of the subject. Research on teaching the Chinese culture indicates that incorporating games into teaching can enhance student engagement, promote social and emotional learning and encourage students to take risks. Flexibility and creativity in teaching methods are key to keeping students engaged and motivated in learning the Chinese culture. In the classroom, lecturers can use Cultural Artefacts, Online Resources, Discussions and Debates, Cultural Workshops, Cultural Competitions, Role-Playing, Creative projects, Storytelling etc. These approaches can be beneficial for improving students' cultural knowledge and Chinese language proficiency.

Figure 5: Student satisfaction with teaching materials for Chinese culture courses at the two universities

Q.4 Are you satisfied with the learning aids used?

	not satisfied	not very satisfied	More satisfied	Very satisfied
Sabaragamuwa	27%	40%	30%	3%
kelaniya	43%	43%	10%	3%

Source: Developed by author,2024

Accordingly, it is obvious that students exhibit diversified opinions related to the use of learning tools in the course content of Chinese culture. At Sabaragamuwa University, the majority of students, indicated by 40%, depicted their dissatisfaction regarding the use of current teaching materials. Yet 30% expressed that they are "more satisfied" with the teaching tools utilised by lecturers at present. Additionally, 27% of students indicated that they are 'not satisfied' while only 3% of students mentioned that they are 'very satisfied'.
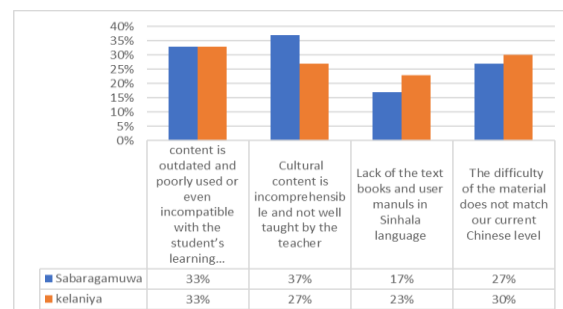
In relation to the University of Kelaniya, the majority (43%) of students reported their dissatisfaction related to the teaching aids while 10% expressed that they are 'more satisfied'. Only 3% of students mentioned that they are 'very satisfied'.

According to the findings of the survey, students of the University of Sabaragamuwa and the University of Kelaniya have different opinions about the usage of learning tools in the 'Chinese Culture' course. The majority of students of Sabaragamuwa University are not particularly pleased with the course materials, however, a smaller portion demonstrated greater satisfaction. In contrast, the majority of students in Kelaniya expressed dissatisfaction with the course contents, while a small minority expressed greater satisfaction. These results underline the necessity of a more thorough analysis of the instructional resources utilised and possible enhancements to better satisfy the requirements and expectations of the students. The overall educational experience for students enrolled in the "Chinese Culture" course may be improved by additional research and modifications in this domain.

Figure 6: Reasons for student dissatisfaction with learning aids at the two universities

Q.5 What are the reasons why you are not satisfied with the learning aids used?

	content is outdated and poorly used or even incompatible with the student's learning...	Cultural content is incomprehensible and not well taught by the teacher	Lack of the text books and user manuls in Sinhala language	The difficulty of the material does not match our current Chinese level
Sabaragamuwa	33%	37%	17%	27%
kelaniya	33%	27%	23%	30%

Source: Developed by author,2024

The following are the findings of a Sabaragamuwa University survey about reasons for dissatisfaction related to learning tools: 'Cultural content is incomprehensible and not well taught by the teacher' is the most often cited cause for discontent (37%). 'Outdated and poorly used or even incompatible with the student's learning' is the second most frequently cited cause (33%). Students cited 'The difficulty of the material does not match our current level' as the third justification (27%). Furthermore, 17% of undergraduates cited 'Lack of textbooks and user manuals in Sinhala language'" as their main source of dissatisfaction.

The following are the findings of a survey conducted at the University of Kelaniya about the reasons for student dissatisfaction with instructional materials: 'Content is outdated and poorly used or even incompatible with the student's learning' is the most often stated reason by students (33%). 'The complexity of the material does not match our current level' is the second most commonly cited reason (30%). Among the reasons given by students, "Cultural content is incomprehensible and not well taught by the teacher" ranks third with a proportion of 27%. Finally, 'Lack of textbooks and user manuals in Sinhala language' was cited by 23% of the students.

Teaching materials are essential tools for disseminating Chinese culture and assisting in Chinese language instruction. However, in actual teaching, international students often spend limited time reading textbooks. On

one hand, the content of textbooks may not always capture their interest and attention. On the other hand, many students prefer to learn about Chinese culture through interactions with lecturers or classmates. Moreover, traditional Chinese culture is profound and complex, making it impossible to grasp the full scope of Chinese culture solely through oral communication.

Therefore, there is a necessity for lecturers to start with teaching materials that cater to students' areas of interest, enrich the content of teaching materials, incorporate images and online video materials as appropriate and use well-designed Chinese culture teaching materials for more effective cultural instruction. In Sri Lanka, there are very few textbooks compiled of Chinese culture and most of the currently used materials are not suitable for the students' Chinese proficiency level. The survey results highlight the significant impact of lecturers' use of teaching materials on students' cultural learning. It is important to identify that, students are less motivated to acquire the content when concepts taught by lecturers are complex and less interesting.

Although lecturers at both universities employ Sinhala, which is the mother tongue of Sri Lankan students, many students still do not understand the teaching content which is a significant issue. It is obvious that Bilingual instruction is also not possible to find solutions for the problem. Additionally, the content of textbooks such as the currently used 'New Practical Chinese Reader', 'Common Knowledge about Chinese Culture' and 'Chinese Culture Essentials' have become outdated and especially failed to meet the current level of students' proficiency.

Figure 7: Teaching methods used by lecturers in Chinese culture courses at two universities

Q.6 What teaching methods does the lecturer use in the classroom?
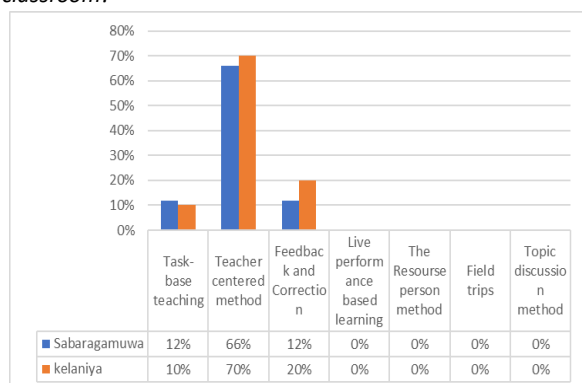
Source: Developed by author,2024

The following are the findings of a survey conducted at Sabaragamuwa University regarding the instructional strategies used by lecturers: The teacher-centred style was preferred by 66% of students, task-based instruction by 12%, and feedback and correction by 12%. None of the students selected the 'live performance-based learning' option, 'the resource person method,' 'field trips', or 'topic discussion method.'

As per findings of the sample from the University of Kelaniya, in the classroom, the lecturer employs the following instructional strategies: 10% of students selected 'task-based teaching,' 20% selected 'feedback and correction,' and 70% selected 'teacher-centred method.' Students did not select the "live performance-based learning" option, "the resource person method, 'field trips,' or 'topic discussion method.'

In conclusion, the predominant teaching method employed by lecturers in both universities is the 'Teacher-Centred Method' followed by 'Feedback and correction'. Lecturers also incorporate 'Task-based teaching' into their teaching approaches to a certain extent. The absence of selection for other teaching methods suggests that these methods may not be widely utilised or preferred in these Universities. Further discussions and research may be necessary to explore potential opportunities for diversifying teaching methods and aligning them with student preferences and learning outcomes.

Discussion

As per the results of the survey, valuable insights and findings regarding the Chinese cultural course were identified. These findings cater to several important factors related to the content of the course, perceptions and attitudes of students, teaching methods and teaching materials with challenges associated with the teaching-learning process. In this section, the researcher focuses on analysing major findings in order to identify implications and recommendations for enhancing the quality of these degree programs.

The findings of the survey, first and foremost, reveal a notable difference in students' views on studying Chinese culture. Many students at the University of Kelaniya agree that knowing Chinese culture is vital, and a significant percentage of them say that it is "very important and not too difficult." In contrast, students at the University of Sabaragamuwa are more likely to find the subject challenging and to place less value on learning Chinese culture. Since students' lack of interest and motivation could hinder their learning progress, this attitude gap could have an impact on the overall efficacy of instruction.

The importance of integrating cultural competence into language learning is upsized by the survey findings. Language acquisition undoubtedly includes mastering pronunciation, vocabulary, grammar, and writing systems. However, the cultural context in which language is embedded is often overlooked. Cultural competence, which encompasses shared beliefs, customs, and thought systems within a language community, is essential for comprehensive language proficiency. As such, it is imperative that Chinese language courses incorporate cultural elements to enhance students' language skills.

The results of the survey also provide insight into the common teaching strategies in these Chinese culture courses. It is obvious that PowerPoint presentations and multimedia are common instructional resources, suggesting that visual aids are important in instruction. However, the limited usage of social networking tools indicates that there is potential for more technological integration and online platform engagement with students. Lecturers should experiment with a variety of techniques to increase student involvement, including role-playing, creative projects, discussions, debates, cultural workshops, cultural artefacts,

internet resources, and storytelling, all of which can promote language and cultural knowledge.

Moreover, the survey also reveals that students have mixed opinions about the teaching materials. The majority of students and lecturers were dissatisfied with the curriculum and teaching materials employed. The survey revealed that most of the content is outdated, less challenging and incompatible with addressing the language proficiency of students. This upsizes the need for culturally relevant and engaging teaching materials that align with students' interests and abilities. Lecturers should consider adapting materials to the specific needs of all the students equally, and there is an opportunity for collaboration with Chinese language instructors in Sri Lanka to develop more suitable course materials.

In terms of teaching methods employed by lecturers, the dominant use of the 'Teacher-Centred Method' in both universities indicates the need for diversification. Incorporating more student-centred approaches, task-based teaching, and interactive methods can cater to diverse learning styles and preferences. It is crucial to align teaching methods with students' expectations and desired learning outcomes. It is important to align teaching methods with the expectations of learners and desired learning outcomes. The use of the 'Teacher-Centred Method' by lecturers is prevalent in both universities, indicating the need for diversification. The addition of more student-centred approaches, task-based teaching, and interactive methods can accommodate a range of learning preferences and styles.

According to Swain (2000), collaborative learning or collaborative discourse describes exchanges in which students and teachers work together to solve problems and expand knowledge. This concept has been suggested in Sri Lanka and instruction in terms of students learning by working with peers in group or pair projects while developing mutual knowledge with teachers. A comprehensive strategy is required to solve these issues. Collaborative teaching and learning, involving both local and Chinese lecturers, can bridge cultural knowledge gaps and ensure effective communication. Resource sharing and cultural education initiatives can provide lecturers with the tools and materials needed for culturally relevant and engaging instruction. Furthermore, strengthening the foundation of teachers' cultural knowledge can be achieved through training programs and continuous professional development.

Figure 8: Students' Chinese cultural course learning activity system
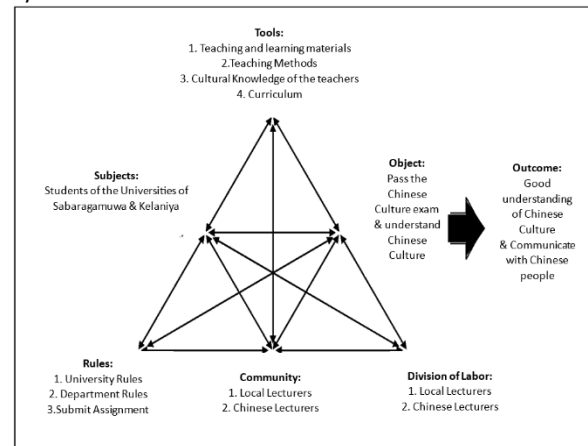
Source: Developed by author,2024

Furthermore, the analysis of data from the survey and observations are incorporated with the framework of Activity theory to gain a deeper understanding of diversified elements related to the integration of Chinese culture in the Chinese language proficiency courses. In the study, the Activity theory provides a comprehensive framework for examining the complex interactions between subjects, tools, rules, community and division of labour in educational settings, which can provide valuable insights into the issues and potential solutions identified in the survey results.

Understanding the Problems through Activity Theory: According to Activity theory, participants in the learning process, namely students and lecturers, possess subjective goals that shape their engagement and outcomes. The survey data reveals that students hold diverse objectives, with some prioritizing the attainment of a degree while others are motivated by personal interests. These differing goals can result in varying levels of motivation and satisfaction, underscoring the importance of aligning individual objectives within the educational framework.

Teaching materials and methods are conceptualized as tools within the Activity system that facilitate the achievement of learning objectives. The dissatisfaction expressed by students regarding teaching materials indicates a disconnect between these tools and the intended objective of fostering cultural competence. Such a misalignment disrupts the cohesion of the activity system and can significantly hinder the effectiveness of the learning process.

Furthermore, the survey findings highlight disparities in cultural knowledge among lecturers, which directly affect the division of labour within the educational community. In line with activity theory, the division of labour plays a critical role in determining the effectiveness of collective activities. The limited number of lecturers with adequate cultural knowledge represents a barrier to achieving the overarching goals of the educational activity. The focus on this gap is essential to ensuring the alignment and success of the learning process.

Solutions through Activity Theory: As per the argument of Psychologist Vygotsky, individuals grant the capability to acquire desired goals and objectives through interaction with objects (the environment) via mediating tools by

emphasizing the cognitive ability of individuals through a process which enables participants of the subject in social practice, negotiations with meanings and regulate and change objects by internally and externally. This mechanism is employed by material or symbolic mediating tools (Lantolf et al., 2018).

According to the Activity theory, major emphasis is attributed to aligning with the goals and objectives of participants of the Activity system. Yet, in order to address the differentiated attitudes and motivations of students, it is required to set obvious and effective learning objectives in Chinese language proficiency programs. According to Hattie (2009) and Weinstein, Tomlinson-Clarke, and Curran (2004), establishing a positive teacher-student relationship is a fundamental component of culturally responsive teaching and is crucial for encouraging a sense of motivation and belonging in the classroom. Furthermore, multiple cultural viewpoints are incorporated into a culturally responsive curriculum, which enhances the educational process and reflects students' real-world experiences (Ladson-Billings, 1995; Nieto, 2010). Learning and cognition are seen by sociocultural theory as intricate social practices that are gained through dialogic communication within historical and cultural contexts (Kostogriz, 2000).

According to sociocultural theory, cognitive growth is thus conceptualised as a result of an individual's interactions with other individuals, objects, and events. Therefore, it is impossible to separate human activity-driven growth from its historical, social, and cultural context (Johnson, 2009). Higher functions of individuals are shaped by social and cultural instruments, making learning contextual from a sociocultural standpoint (Snow, 1994). The Activity theory furthermore upsizes tools and mechanisms needed to be compatible for objectives. In order to enhance the satisfaction of students with the teaching materials, lecturers can enhance the exposure to culturally relevant materials. The study recommends that a participatory approach can help ensure that the tools (materials) better serve the desired outcomes. Both teachers and students must actively participate in the process of learning Chinese as a second language. In addition to providing guidance, the instructor also takes part in the teaching process. Students are constantly influenced by the teacher, who offers the required support during the learning activities. Furthermore, each participant in the educational process makes a unique contribution (Yue, 2013).

It is critical to address the disparity in the instructors' cultural understanding. The gap can be overcome by collaborative instruction with experienced Chinese educators from Sri Lanka. The total quality of instruction can be raised and better aligned with the intended goals by lecturers sharing knowledge and resources.

As per the findings of the study, the necessity to initiate a collaborative teaching-learning process, teachers should have an adequate level of knowledge and experience regarding basic conceptualizations of collaborative learning. Moreover, undergraduates should transform from their traditional procedure of language learning to a cooperative language teaching scope in the language classroom. It is difficult to infuse these changes at once, yet language educators should be optimistic regarding possible

applications and implications of the initial implementation of collaborative learning. In order to overcome these challenges, Wilhelm's (1997) study claims to conduct comprehensive training programs with exposure to collaborative and learner-centred techniques as a major solution.

Activity theory encourages the exploration of various methods to achieve objectives. To address the dominance of the 'Teacher-Centred Method,' lecturers can incorporate more student-centred approaches, such as task-based teaching, interactive discussions, and group projects. Diversifying teaching methods can better accommodate students with different learning styles and preferences.

The interconnection of the Activity theory with the major findings of the study has accounted for providing an in-depth understanding of the problem with solutions and analysed these considerations related to the Sri Lankan scope with a holistic perspective. Further exposure to the correlation between participants, tools, rules and objectives within the Activity system, enables higher educational institutes to develop effective ad strategies for teaching Chinese culture effectively. This approach aligns with the core principles of activity theory, emphasising the need for systemic and collaborative solutions to complex issues within the educational context.

CONCLUSION

In conclusion, the results of the survey from the University of Sabaragamuwa and the University of Kelaniya provide an overview of the possibilities and challenges associated with teaching Chinese culture. According to the aforementioned information, there are differences in student attitudes, teaching strategies, learning aid satisfaction, and challenges with instructional resources.

Activity theory, which was incorporated into the discussion, has provided a useful framework for understanding these issues and proposing potential solutions. These findings can be categorised under a few sub-themes:

1. Diverse Student Attitudes: The perspectives of students at Kelaniya and Sabaragamuwa regarding understanding Chinese culture differ significantly; the first group consider it as important, while the latter finds it more difficult and unimportant. It is essential to align the course objectives with the objectives and aims of the students.

2. Teaching Methods and Learning Aids: Both universities predominantly employ stereotypical teaching methods such as PowerPoint slides and multimedia tools. However, there is a tendency for diversified teaching approaches, incorporating student-centred methods, and making effective use of available learning aids, particularly social network tools.

3. Teaching Materials and Cultural Competence: Dissatisfaction with instructional materials is a common concern. To increase cultural competency, it is crucial to provide interesting and culturally relevant resources, predominately by working with students.

4. Division of Labour and Cultural Knowledge: Discrepancies in lecturers' cultural knowledge can

impact the effectiveness of teaching in the context. Collaborative teaching involving experienced instructors and resource sharing can help bridge this knowledge gap.

A holistic approach is essential to resolving these problems and developing an improved educational setting for the Chinese culture. This involves promoting dialogue and cooperation between instructors and students, revising the course objectives in accordance with the objectives of the students, and developing relevant teaching resources and strategies. Furthermore, implementing contemporary teaching strategies including interactive exercises and task-based learning can improve student engagement and learning outcomes.

Finally, the universities can improve the quality of Chinese cultural education and enhance the ability of students to deal with the complexities of an increasingly globalised world by working together and resolving the particular issues observed in the findings of the survey. Students and lecturers can both benefit from a more peaceful and productive learning atmosphere created by applying the ideas of activity theory, which will ultimately promote a deeper comprehension of the Chinese language and culture.

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